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Bridging the Gaps in Obstetric Care: Perspectives of Service Delivery Providers on Challenges and Core Components of Care in Rural Georgia

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Abstract *Objectives* In 2011, a workforce assessment conducted by the Georgia Maternal and Infant Health Research Group found that 52 % of Primary Care Service Areas outside metropolitan Atlanta, Georgia, had an overburdened or complete lack of obstetric care services. In response to that finding, this study's aim was twofold: to describe challenges faced by providers who currently deliver or formerly delivered obstetric care in these areas, and to identify essential core components that can be integrated into alternative models of care in order to alleviate the burden placed on the remaining obstetric providers. *Methods* We conducted 46 qualitative in-depth interviews with obstetricians, maternal-fetal medicine specialists, certified nurse midwives, and maternal and infant health leaders in Georgia. Interviews were digitally recorded, transcribed verbatim, uploaded into MAXQDA software, and analyzed using a Grounded Theory Approach. *Results* Providers faced significant financial barriers in service delivery, including low Medicaid reimbursement, high proportions of self-pay patients, and high cost of medical malpractice insurance. Further challenges in provision of obstetric care in this region were related to patient's late initiation of prenatal care and lacking collaboration between obstetric providers. Essential components of effective models of care included continuity, efficient use of resources, and risk-appropriate services. *Conclusion* Our analysis revealed core components of improved models of care that are more cost effective and would expand coverage. These components include closer collaboration among stakeholder populations, decentralization of services with effective use of each type of clinical provider, improved continuity of care, and system-wide changes to increase Medicaid benefits.

Keywords Georgia · Obstetrics-gynecology · Rural · Certified-nurse midwives · Advanced nurse practitioners · Shortage

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Significance

This is the first qualitative research study to detail the perspectives of Georgia obstetric service delivery providers on the challenges they face while providing care to patients. Due to Georgia's high maternal and infant mortality rates, state and local organizations are highly invested in solutions to improve maternal and infant health outcomes. These findings may serve as guidance to policymakers and program managers as they innovate solutions that mitigate patient and provider challenges and that create an effective maternal care system in Georgia.

Introduction

In 2007, 15.8 % of women in Georgia either initiated prenatal care late or received no prenatal care during their pregnancy [1]. Research shows that women with

inadequate prenatal care are 1.36 times more likely to have a premature baby than women with adequate prenatal care [2]. In 2011, the percent of live births born premature (<37 weeks) in Georgia was 11.6 per 100,000 live births and the maternal mortality rate in Georgia was 35.5 deaths per 100,000 live births [3]. In 2015, the March of Dimes reported that Georgia had a 10.8 % premature birth rate and designated the state with a D rating, indicating that it fell well below the March of Dimes national premature birth goal of 8.1 % by 2020 [4].

These poor outcomes could, in part, be related to a maldistribution of clinical obstetric providers across the state. In 2011, the Georgia Maternal and Infant Health Research Group (GMIHRG) conducted a workforce assessment that identified significant gaps in obstetric services outside of metropolitan Atlanta, Georgia (Fig. 1). Overall, 52 % of the Primary Care Service Areas in Georgia had an overburdened or complete lack of obstetric care [5]. The American Congress of Obstetricians and Gynecologists reaffirmed this finding in 2012, when they reported that 80 of the 159 counties in Georgia completely lacked both obstetric and gynecologic (ob-gyn) services [6].

Georgia's situation causes unique challenges for both the patient and the provider. The maldistribution of obstetric providers across the state could require women outside metropolitan areas to travel long distances to see a delivering provider, which has been shown to have a significant impact on pregnancy outcomes. A study conducted by Anderson in 2013, found that in Georgia women that drive over 45 min to get to their delivering hospital are 1.53 times more likely to have a premature delivery than women who drive <15 min [7]. The maldistribution issue is exacerbated by the increasingly frequent hospital closings throughout rural Georgia. Since 1994, there have been nearly twenty labor and delivery unit closures in hospitals outside metropolitan Atlanta (Fig. 2), with no new facilities opening during that time. This means that patients that once had a birthing facility (and an associated delivery provider) close to their home, now have to drive longer distances to reach both their prenatal care and delivery hospital.

Although national data documenting challenges faced by obstetric providers is limited, evidence does suggest that the growing shortage of ob-gyns in rural areas has presented significant challenges. In 2010, Rayburn et al. [9], found that ob-gyns comprised only 5 % of all physicians in the United States, with the number of providers sharply lower in rural areas than in metropolitan areas. Factors identified as contributors to this shortage are an aging workforce [8], rural providers receiving less money than those working in urban areas [9] and a shift to having more women in the ob-gyn workforce, as fewer women than men in the same profession choose to work in rural areas [10].

In response to these issues, GMIHRG launched a comprehensive research study in 2013 with two goals; (1) to

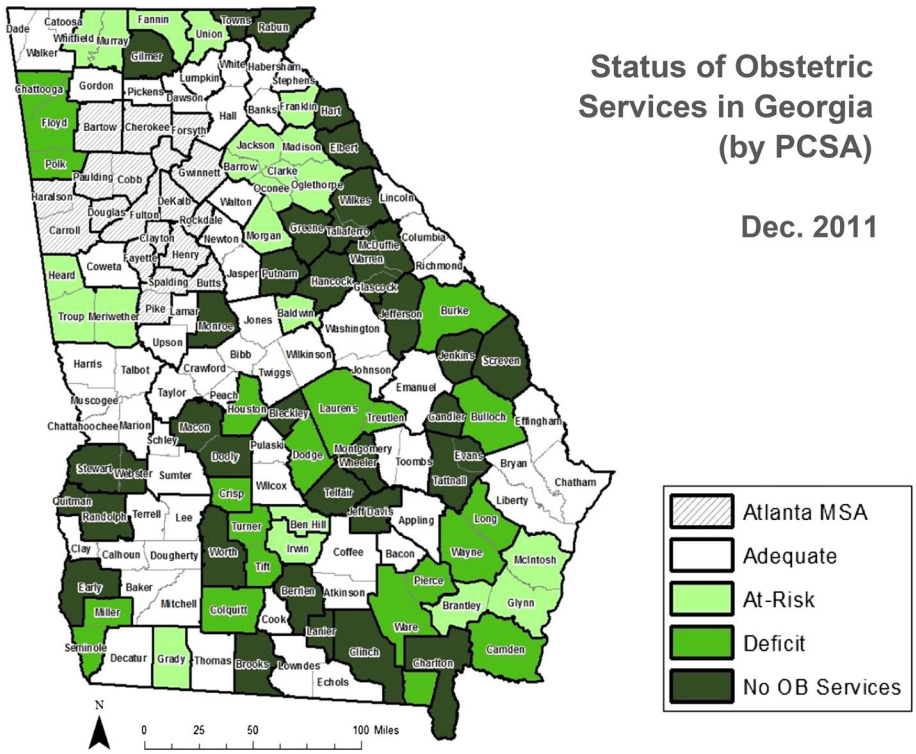
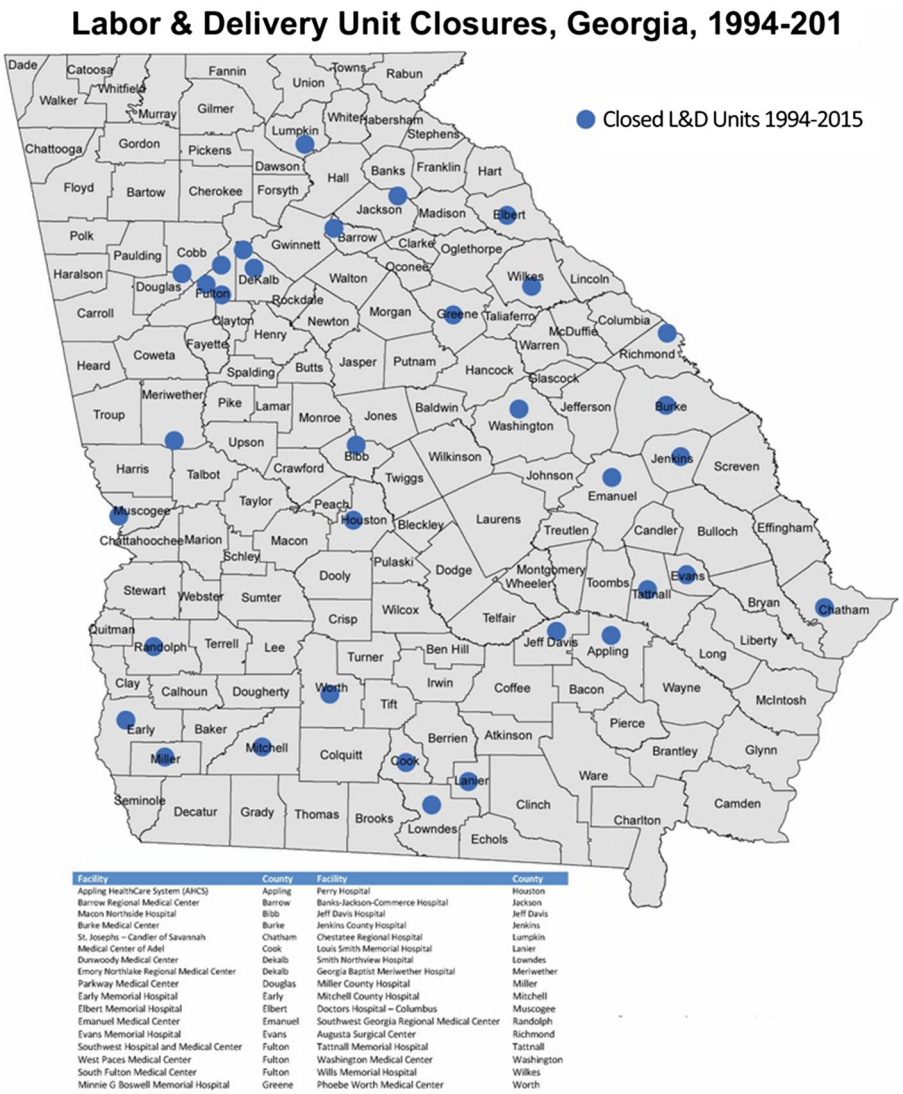


Fig. 1 Georgia maternal and infant health research group, 2011



Facility	County	Facility	County
Appling HealthCare System (AHCS)	Appling	Perry Hospital	Houston
Barrow Regional Medical Center	Barrow	Banks-Jackson-Commerce Hospital	Jackson
Macon Northside Hospital	Bibb	Jeff Davis Hospital	Jeff Davis
Burke Medical Center	Burke	Jenkins County Hospital	Jenkins
St. Josephs – Candler of Savannah	Chatham	Chestatee Regional Hospital	Lumpkin
Medical Center of Adel	Cook	Louis Smith Memorial Hospital	Lanier
Dunwoody Medical Center	Dekalb	Smith Northview Hospital	Lowndes
Emory Northlake Regional Medical Center	Dekalb	Georgia Baptist Meriwether Hospital	Meriwether
Parkway Medical Center	Douglas	Miller County Hospital	Miller
Early Memorial Hospital	Early	Mitchell County Hospital	Mitchell
Elbert Memorial Hospital	Elbert	Doctors Hospital – Columbus	Muscogee
Emanuel Medical Center	Emanuel	Southwest Georgia Regional Medical Center	Randolph
Evans Memorial Hospital	Evans	Augusta Surgical Center	Richmond
Southwest Hospital and Medical Center	Fulton	Tattnall Memorial Hospital	Tattnall
West Paces Medical Center	Fulton	Washington Medical Center	Washington
South Fulton Medical Center	Fulton	Wills Memorial Hospital	Wilkes
Minnie G Boswell Memorial Hospital	Greene	Phoebe Worth Medical Center	Worth

Fig. 2 Labor and delivery unit closures, Georgia, 1994–2015

understand the challenges that Georgia's obstetric providers face while offering prenatal and postpartum services and (2) to identify core components of sustainable alternative models of care that could be implemented outside metropolitan areas.

Methods

Participant Selection

In-depth interviews were conducted with 46 health professionals who currently or previously have worked within the obstetric system in the state of Georgia (Table 1). Participants were recruited via email, using purposive sampling and snowballing. Recruitment continued until interviewers determined they had reached data saturation.

Data Collection

Data was collected using semi-structured, in-depth interviews to allow participants to share their individual experiences and perspectives. Research assistants were trained in qualitative research techniques by a qualified research professor. They developed two unique in-depth interview guides for the study, one for clinical providers and another for administrative/policy service delivery providers. Topics discussed in the interviews included patient population, funding, malpractice, major challenges, and probing questions on four proposed models of care (Table 2). Questions involving the models of care were created in an effort to identify essential components of care and to potentially identify one successful alternative model that could be implemented across Georgia. Interviews were conducted until interviewers reached saturation, therefore

Table 1 Study Participants

Number	Type
17	Obstetrician-gynecologists (generalists)
5	Family practitioners
2	Maternal-fetal medicine specialists (perinatologists)
5	Certified nurse midwives
5	Staff members of care management organizations
7	Staff members of the department of public health or Georgia obstetric and gynecological society
5	Hospital administrators

ensuring validity of the study. All interviews took approximately 60 min and were conducted face-to-face in the participant's office or over the phone between July and September 2013.

Data Analysis

All interviews were transcribed verbatim and de-identified to ensure the confidentiality of study participants. Qualitative data were then uploaded into MAXQDA software. A priori codes were developed from an initial literature review and served as a conceptual framework for data analysis. During the initial transcript review, emergent codes were also identified. All codes were grouped into themes and entered into a codebook. One-third of the transcripts were assessed for inter-coder reliability before finalizing the codebook and completing data coding.

Data analysis was conducted using a Grounded Theory Approach to extract core themes around the challenges that service delivery providers faced and to determine core components of effective alternative models of care. Comparisons of perspectives were made across provider type, practice location, and gender to identify patterns. Using the map developed by GMIHRG in 2011 (Fig. 1), each participant was assigned a "service area type" based on their practice location: shortage area, non-shortage area, and non-shortage but proximal shortage area (Fig. 3). At the conclusion of our analysis, we assessed reliability of the study and validated the themes and theories generated during analysis by revisiting the transcripts to ensure that our inferences were supported by the raw data and consistent representations of the study population.

Ethical Considerations

This study was granted an exemption from full Internal Review Board (IRB) review in June 2013 by the Emory University IRB.

Results

Through analysis of the data there emerged two types of challenges; those uniquely faced by clinical providers and those that were pervasive throughout the system as a whole. Both of those challenges are described in detail below.

Clinical Providers' Challenges

Three main challenges to providing obstetric care were identified by clinical providers: (1) cost of service delivery, (2) malpractice liability, and (3) perceptions of advanced practice clinicians.

Cost of Service Delivery

While nearly every participant listed finances as a major challenge in their profession, clinical providers placed significantly more weight on this factor. A majority of clinical providers expressed that Medicaid reimbursements were too low and the cost of malpractice insurance was too high for them to continue working in obstetrics.

Low Medicaid reimbursement rates were cited as affecting their practice and impairing their ability to provide care to their patients. Participants expressed the need to add more patients to their schedules if they served Medicaid patients because they would be paid less for those appointments; this left them with very little time to provide their patients with counseling and pregnancy education.

Their financial struggles were amplified by the high cost of medical malpractice insurance. One ob-gyn highlighted this challenge by stating that everything has a tremendous cost, including "malpractice insurance, employee salaries and benefits, utilities, rent. So how do they think that we can keep providing service and be happy, keep that smile on our face, and keep paying us the same?" As a result of high malpractice costs, a few providers felt that soon it may no longer be "lucrative to continue to provide obstetric

Table 2 Alternative Models of Care

Model name	Description and example
Ob-gyn time-share	A large obstetric group in Atlanta has proposed increasing access to obstetric and gynecological services in shortage areas by developing a rotating schedule of visiting obstetrician/gynecologists. Participating physician would spend 3–4 days each month providing women in an underserved area with obstetric and gynecologic services. Incentives, such as luxury accommodations and access to quality golf courses for the duration of their stay, would serve to encourage physician participation in the program. All malpractice costs would be covered through the group practice. The aim of this model is to reduce the burden on local physicians, as well as to increase the availability of services to women in these communities
Tiered model of care	Since 2002, a private Atlanta-based practice has used a tiered system of care to provide both obstetric outpatient and inpatient services to a large region of metropolitan Atlanta. All deliveries take place at a centralized hospital, while outpatient services are provided at nine part-time clinics distributed throughout the area. Outpatient services are provided on three tiers: Mid-level practitioners [certified nurse midwives (CNMs) and obstetric physician assistants (PAs)] provide care to low risk patients in decentralized clinics. Care is delivered part-time, in community-based facilities, and at low cost Obstetricians care for moderate risk patients, as identified by the mid-level providers, in fewer, more centralized locations. Many obstetricians in this model work part-time and maintain their own private practices Maternal-Fetal Medicine (MFMs) specialists see high-risk patients in one central location This tiered outpatient system is complemented by a similarly tiered system for inpatient services: Normal, uncomplicated births are attended by mid-level providers (CNMs and obstetric PAs) Complicated births and uncomplicated antepartum services are attended by obstetricians High-risk obstetric care is handled by MFMs Departing from the fee-for-service model, this model provides the option of a single flat-fee for comprehensive outpatient maternity care (including all labs, ultrasounds, monitoring, etc.). They also accept private insurance and Medicaid
Obstetrician hospitalist	Obstetrician hospitalists work exclusively with hospitalized obstetrical patients. They manage labor, follow fetal heart tracings, address dysfunctional labor, perform operative deliveries, and manage obstetric emergencies. Many also care for acute gynecologic patients. As hospital-based physicians, they maintain communication with patients' regular physicians and provide the option of delivering for the physician. As full-time hospital employees, they enjoy a predictable shift-based work schedule. For these reasons, this model of obstetric care has been increasing in popularity since 2010. Georgia currently has three hospitals that use this model, Gwinnet Medical Center—Lawrenceville, Athens Regional Medical Center and Wellstar Cobb Hospitalists
Mobile clinics	Historically, in Georgia and in the southeastern United States, mobile clinics and home visitation programs have been effective at reaching populations and improving outcomes for women living in shortage areas. There are several existing programs in Georgia that focus primarily on maternal and infant health in the postpartum period (ex. Nurse Family Partnership, BabyLuv)

services". Furthermore, the financial burden has created a barrier for some providers to expand their services to Medicaid patients; one ob-gyn noted that "the challenge now [is] that you really can't make a living taking care of people on Medicaid […] and pay your liability insurance".

Medical Malpractice Liability

The threat of lawsuits had a substantial impact on participants' clinical practice, leading to both fear and mistrust within the system. Nearly half the ob-gyn and maternal-fetal medicine (MFM) participants stated they might practice defensive medicine due to the fear of a potential medical malpractice lawsuit. One ob-gyn stated, "I think we may practice defensive medicine. I never regretted doing a C-section […] but I still think there are situations where interventions are done because you are so worried about a bad outcome." In addition, some participants indicated that malpractice was a part of the system that was out of their control. One provider expressed feeling frustration with this challenge because "you come out of residency and think you're going to conquer the world […] but you come out learning you have to practice medicine completely defensively and it's kind of scary, you know. Everything, every patient and situation, is looked at as a potential malpractice [suit] and you hate to do that because then the patient becomes, not the enemy, but they become not necessarily on your side". The perception that patients are potential malpractice suits takes a toll on medical practitioners and lead to an increased level of mistrust within the patient-provider relationship.

Perception of Advanced Practice Clinicians

Another interesting perception among a number of ob-gyns was an uncertainty regarding advanced practice clinicians, which in turn influenced how the ob-gyn's collaborated and interacted with other stakeholders in the system. One ob-

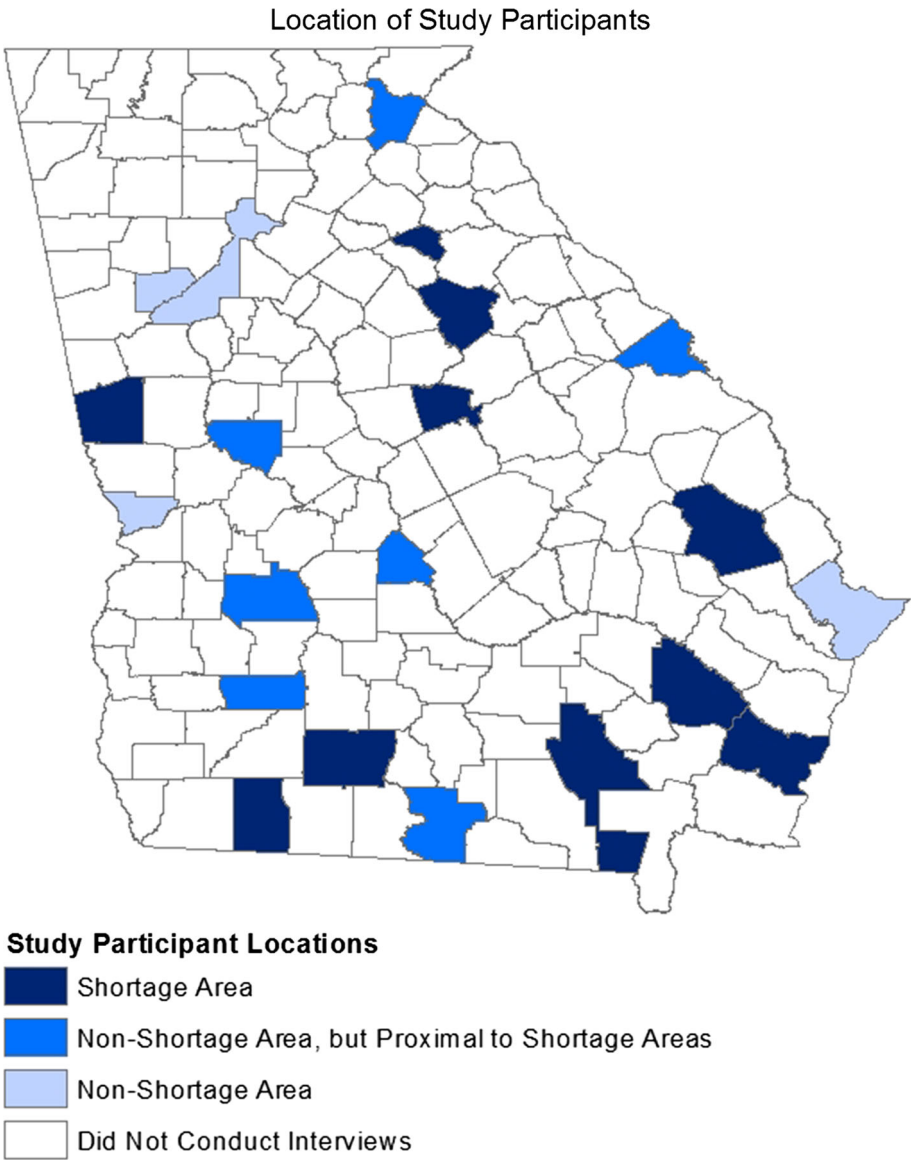


Fig. 3 Location of study participants

gyn described a "good ol' boy" mentality, where older doctors tended to work long hours and did not collaborate frequently with other ob-gyns or with advanced practice clinicians. Some ob-gyns had concerns about the quality of Certified Nurse Midwives (CNMs) and other advanced practice clinicians, especially during labor and delivery. Others were worried that increasing the use of advanced practice clinicians would cause confusion among patients about the role of each provider, as they feared advanced practice clinicians would be mistaken for doctors. All of these factors contributed to reluctance among ob-gyns to collaborate more closely with CNMs.

Other Challenges in the Obstetric System

Our analysis also identified three crosscutting challenges that were pervasive throughout the system of obstetric care: (1) patient population influences on provision of care, (2) late entry into Medicaid, and (3) collaboration among obstetric providers.

Influence of Patient Population on Provision of Care

Study participants discussed the challenge of working with populations of lower socioeconomic means, who tended to be at higher risk for pregnancy complications. One reported, "There are very few, very very few people in [this area], especially the underserved, that are not high risk. The tobacco use, I mean all of the classics: they're overweight, they're underweight, they're teenagers. I mean most of the people who are underserved, are also at risk."

There was a perception that patients of lower socioeconomic status were less inclined to listen to pregnancy education and/or to adhere to risk-reducing behaviors.

Furthermore, several participants reported that patients with this background would often come late or miss their appointments all together, creating longer wait times and a decrease in scheduling efficiency. A staff member of a Care Management Organization (CMO) said that the biggest complaint from physicians has been regarding the patient no-show rate. He reported, "There are times that [physicians] will multi-book [patients] and all of them will show up, and then [the patients] will complain because they have to wait. Then there are times when they will multi-book and hardly anyone shows up and they could have put, maybe, a commercial patient into that slot."

Participants from CMOs stated that case management is also difficult because communication is generally through telephone calls and postal mail, and patients' contact information changes frequently and is not easily updated within the system.

Late Entry into Medicaid

Late initiation of prenatal care, due to the slow process of enrolling in Medicaid, was also identified as a challenge within the maternal care system in Georgia. Participants from CMOs noted that the length of time it takes for women to complete the Medicaid application leads to some women not seeing a provider until their second trimester, thereby delaying the care they need to mitigate potential risks and complications during pregnancy. Consequently, clinical providers then find themselves "playing catch up" and struggling to address and manage these risks at a later stage in pregnancy.

Lack of Ability to Collaborate with Other Obstetric Providers

Lack of collaboration between advanced clinical providers was another theme throughout the interviews. Ob-gyns and MFMs agreed that working together to care for high-risk patients was essential, but both acknowledged challenges inherent to that collaboration. This was particularly evident among rural providers, as MFM practices are typically located in metropolitan areas. One family practitioner noted that their practice makes every effort to collaborate with MFMs, but when it comes to delivering their patients they "don't know the definition of high-risk…. We deliver everybody. High-risk is an afterthought …. We don't want to do high-risk work, but high-risk walks into our department everyday". This sentiment reflects a significant problem within the system; it is recommended that women with certain risk factors deliver at higher-level facilities (where specialists, technology, and resources are more readily available), but instead they go to the closest delivering hospital and often arrive too late to be transferred to another facility.

Core Components of Care Delivery Models

One of the main goals of analysis was to learn participants' perceptions of four proposed alternative models of care (Table 2) in order to identify one potential solution for implementation in shortage areas. Interestingly, we found that participants' perceptions of these models varied widely, and as a result, there was no consensus on the usefulness and effectiveness of the models. Therefore, an alternative analysis was conducted on the components of care that participants described as essential to any successful model. The responses revealed three main aspects: (1) continuity of care, (2) efficient use of resources, and (3) risk-appropriate care.

Continuity of Care

Participants emphasized that continuity of care was an extremely important component of care, and therefore responded negatively toward models of care that had a rotation of providers. They stressed the need for continuity in the patient-provider relationship and felt that information that was not captured in medical records could be lost with rotating physicians. A member of a district health office shared that "there is certain information that you get from seeing a patient over and over". Even clinical providers who used a rotation of clinicians stated that they made an effort to "build that relationship with [the patients]. I don't think you could use [a rotation model] if you had an outpatient practice where the patient saw a whole bunch of different providers—if they saw whoever was there for that day, and none of them were going to be the one that delivered them".

Effective Use of Clinical Providers

Participants frequently emphasized the need to effectively use the different types of clinical providers. For example, they believed that CNMs could be used more appropriately to complete certain aspects of maternity care, especially given that an ob-gyns' time was considered by most to be a "limited resource." These aspects of care included the "educational piece [… and] the case management piece; it doesn't need to be a physician […]. It's a better utilization of [ob-gyns'] resources to take care of those patients, and the education really should take place by [advanced practice clinicians]." This sentiment was especially common among CNMs, one of which stated that "we should be the first line; we are trained in normal pregnancy and physiology. We should be the first line because most pregnancies are normal. We know when they are not normal, and when they are not normal, then we refer up. That way, you have the best utilization of resources."

Risk-Appropriate Care

The final component of care combined many of the sentiments within the other domains described above. The current maternal care system hinders close collaboration between providers, and it precludes effective use of different types of clinical providers, because it lacks incentives to refer high-risk women to the most appropriate level of obstetric care. One member of the DPH stated, "as long as we reimburse people at the global fee, doctors are going to keep women in the level of care that they should not be, and that is a problem. […]They know they may be at risk, but the family practice or even the OB may want to keep [these patients] because they know that is money; even though it is not in the best interest of the momma […] there is no incentive to send the woman to the right level of care."

Discussion

This is the first qualitative research study to detail the perspectives and challenges of Georgia obstetric service delivery providers working in non-metropolitan Atlanta. Unfortunately, our interviews revealed that the challenges faced by these providers only exacerbate the gaps created by a maldistribution of clinical providers across the state, and thereby perpetuate barriers to care for patients across Georgia. While this study focused on the perspectives and challenges of providers in Georgia, the findings could easily be extrapolated and applied in other similar socioeconomic contexts, as well.

Analysis of the data could not provide a consensus on the most sustainable alternative model of care in Georgia. This lack of consensus provides two insights; first, it highlights the necessity for alternative models of care to be community-specific. Second, it provides context for underlying key core components that are needed in implementing any potentially successful alterative model. In other words, while the models implemented in each community may appear different, consistent themes could enhance the success rate of the program. For instance, in a high-risk population, ob-gyns encounter patients that face numerous challenges, including diabetes, smoking, and teen pregnancy. While ob-gyns are unable to address all of these factors at each visit, emphasis on one core component, *continuity of care*, improves the patient-provider relationship and helps them to address high-risk behaviors over the course of the pregnancy. Another example could be in a lower-risk population where no specific challenges need to be address, yet the normal prenatal care visits need to be prioritized. By having continuity of care in the forefront of the providers mind, the patient-provider relationship could be improved to make sure that that patient feels comfortable and continues to see the provider in a timely manner. Providers' emphasis on continuity highlights their commitment to creating a unique relationship that has the potential to positively influence risk behaviors and adherence to pregnancy advice.

As revealed in our interviews, disorganized collaboration among obstetric providers and uncertain perception of advanced nurse practitioners hinders some clinical practitioners from working closely together for the benefit of the patients. However, another core component of care, the *effective use of clinical providers*, has the ability to resolve these challenges. Tiered models of care, in which every provider is used to their highest potential, could free-up valuable time for overworked providers and could streamline patient care. Delivering ob-gyns and MFMs need to live close to hospitals, many of which have closed in Georgia in recent years, but this alternative model permits CNMs the flexibility to provide decentralized prenatal care in underserved areas surrounding the hospitals.

The final care component, *risk-appropriate care,* can mitigate several identified challenges, including uncertainty of advanced nurse practitioners, malpractice and liability, and collaboration between providers. By creating a model of care that promotes collaboration and has the potential to reduce the feeling of practicing defensive medicine, providers may feel more comfortable working in the intense field of obstetrics.

The cost of service provision and late entry into Medicaid are issues that move beyond the local application of alternative models of care; they need to be addressed on the state or national level. Minimizing the time between application to insurance and a first obstetric visit should be at the forefront of any system wide change. Furthermore, expanding Medicaid could increase reimbursements for providers, incentivizing them to take on additional Medicaid patients and reducing the number of women needing to re-enroll in Medicaid at the beginning of each pregnancy; ultimately, this might reduce time to care.

While every effort was made to ensure the validity of this study, several limitations cannot be ignored. Because of the lack of providers located in shortage areas in Georgia, only a limited number of stakeholders from regions with the worst deficits were able to participate in the study. Yet, even though participants of this study were limited to service delivery providers within the state of Georgia, these findings may be applicable in other similar non-metropolitan areas in the United States; further studies would be needed, however, to ensure validity in non-Georgia locations. Additionally, as our findings suggest that alternative models be community-specific, further research should be conducted on the feasibility and risks of newly designed alternative models of care before they are introduced into a new environment.

Conclusion

Due to Georgia's high maternal and infant mortality rates, state and local organizations are highly invested in identifying solutions to improve maternal and infant health outcomes. This study delineated challenges that providers face working within the Georgia maternal health system and identified key characteristics of effective potential alternative models of care. Our analysis revealed core components of an improved alternative model of care, which are more cost effective and expand coverage. These include closer collaboration among different obstetric provider populations through risk-appropriate care, decentralization of services via effective use of clinical providers, increased continuity of care, and system-wide Medicaid changes to reduce the cost for service providers and to reduce late entry. These changes have the potential to offer public health officials, policy makers, and programmatic administrators the background they need to create innovative solutions to the current systems across Georgia and in other similar areas within the United States.

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