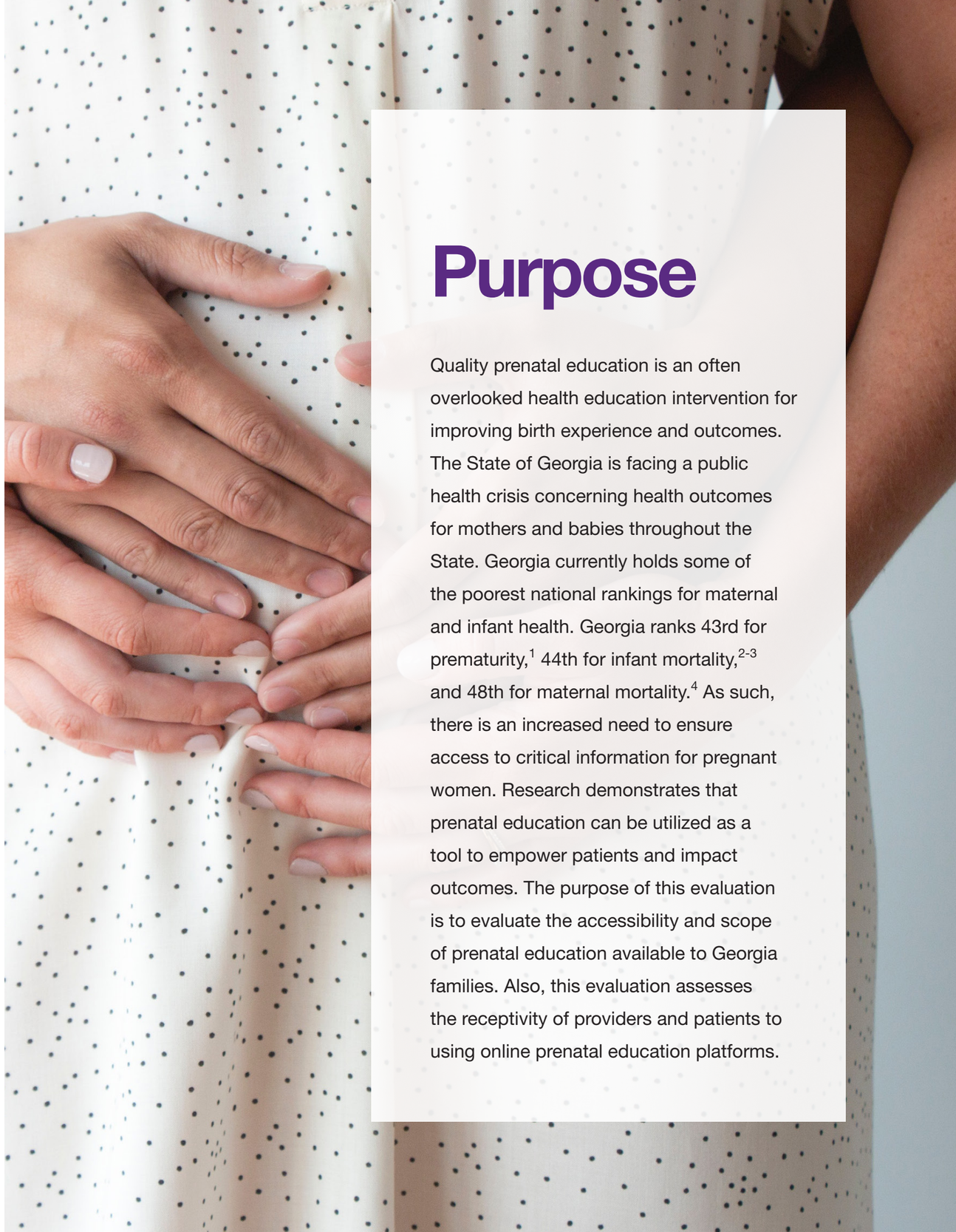
An Evaluation of Current Prenatal Education Availability and Receptivity to Online Education in the State of Georgia

HEALTHY MOTHERS, HEALTHY BABIES
Coalition of Georgia

Contents



Purpose

Quality prenatal education is an often overlooked health education intervention for improving birth experience and outcomes. The State of Georgia is facing a public health crisis concerning health outcomes for mothers and babies throughout the State. Georgia currently holds some of the poorest national rankings for maternal and infant health. Georgia ranks 43rd for prematurity,[1] 44th for infant mortality,[2-3] and 48th for maternal mortality.[4] As such, there is an increased need to ensure access to critical information for pregnant women. Research demonstrates that prenatal education can be utilized as a tool to empower patients and impact outcomes. The purpose of this evaluation is to evaluate the accessibility and scope of prenatal education available to Georgia families. Also, this evaluation assesses the receptivity of providers and patients to using online prenatal education platforms.

Abstract

It is widely accepted that birth outcomes function as a useful measure in understanding population health. As noted in the Background section, prenatal education has been cited as a successful intervention for improving both birth experience satisfaction and birth outcomes. In Georgia, both prenatal care and prenatal education vary by region. Surveys, interviews, and focus groups were conducted in order to best understand the current state of prenatal education in Georgia and to gauge interest in online and/or mobile app-based prenatal education. Results suggest that about half of the providers surveyed refer their patients outside of their practice (most often to the hospitals their patients deliver at) for prenatal education, while the other half provide prenatal education to their patients through their own practice, although many of these providers considered distribution of informational pamphlets as prenatal education. Breastfeeding and newborn/infant care were prioritized by both prenatal care providers and prenatal educators, while topics such as STI prevention and health literacy were of low priority for both. In addition, a significant number of prenatal educators reported implementing a satisfaction survey following their classes, however, only a few measured knowledge gains. Surveys revealed that providers were, on average, very likely to refer their patients to online or mobile app-based prenatal education if made available. Patients reported a desire for face-to-face prenatal education classes, but were receptive to online or mobile app-based prenatal education and indicated that they would be very likely to use this method if recommended by their provider. Patients also noted the convenience of this method due to barriers such as access to transportation and class timing.

Background

Prenatal education is a vital part of pregnancy and childbirth preparation. Nationally, approximately 53% of women report taking childbirth education classes at some point during a pregnancy.[5] Additionally, 70% of both first-time mothers and experienced mothers describe childbirth education classes as “very valuable”.[6] According to the *Listening to Mothers III: Pregnancy and Birth* (2013) report, 55% of mothers find childbirth education classes to be trustworthy; 20% find them to be completely trustworthy, and 35% find them to be very trustworthy.[7] Thus, childbirth education classes are the second most trusted source of pregnancy and childbirth information, after maternity care providers.[8]

Prenatal education has the ability to impact the physical health of both mother and baby, in addition to the mental and emotional health of mothers. Physical labor and birth outcome benefits of prenatal education include: increased knowledge about preterm

labor, postpartum care, and safe sleep practices, less false labor admissions, and increased early skin-to-skin contact.[9-11] One study found that, among women who were educated on preeclampsia, 75% who felt as though they understood preeclampsia properly reported preeclampsia symptoms and fully complied with treatment.[12] Such findings suggest that prenatal education has the ability to educate women on vital signs and symptoms, can encourage them to seek medical attention, and can increase their likelihood of following medical advice.[13] Additionally, women who attend prenatal education exhibit increased decision-making during delivery.[14]

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Mental health benefits of prenatal education include better overall mental health than those who do not attend prenatal education classes. Specific benefits include experiencing less anxiety and sleeping problems, more easily overcoming difficulties, and increased enjoyment of everyday activities.[15,16] Furthermore, among education programs that include fathers and partners, mothers experience the emotional benefit of increased partner involvement.[17,18]

Some research suggests that in-person prenatal education classes are best due to their ability to field questions and clear up misunderstandings quickly; however, other studies find that online classes are vital due to their ability to increase accessibility.[19-20] Similar to online classes, the prospect of mobile applications for prenatal education promise to increase accessibility, convenience, and immediacy of information availability.[21] As many as 55% of pregnant women use some mobile app related to pregnancy, birth, or childcare, indicating that the medium might be viable for prenatal education.[22] One study found that the use of a mobile app during pregnancy significantly increases patient activation, which includes an individual's knowledge, skill, and confidence for managing their own health and healthcare.[23] In a study of 2,400 mothers nation-wide, 82% said they use a laptop or desktop with internet access at least once a week for information about pregnancy and childbirth; 64% described this an "excellent" source of information about pregnancy and childbirth.[24] Similarly, 64% of women said they use a smartphone and 43% described this as an "excellent" source of information.[25]

While individual studies have identified some statistically significant benefits of prenatal education courses, systematic reviews have found that, since prenatal education curricula vary so widely, there is no evidence of which aspects of prenatal education curricula result in improved birth outcomes.[26-27] According to the *Listening to Mothers III: Pregnancy and Birth* report, the most common prenatal education curriculum topics cited by mothers include the labor and birth process (51%), "what to expect when giving birth in the hospital" (29%), and "care options and the benefits and harms of each" (20%).[28] Although prenatal education curricula vary widely, one qualitative study found that 96.8% of mothers who attended different prenatal education classes indicated that the information they were provided should be made widely available to expectant parents.[29] Therefore, the objective of this study is to evaluate the accessibility and scope of prenatal education available to Georgia families, and to assess the need for digital prenatal education platforms, including online education and mobile app-based education.

Study Aim

Aim 1

Aim 1 of the study is to assess the accessibility and scope of prenatal education in Georgia. The goal is to identify if/where providers send families for prenatal education.

Aim 2

Aim 2 of the study is to identify prenatal education providers to assess the format and content of their offerings.

Aim 3

Aim 3 of the study is to assess provider interest in having an online option to refer their clients for prenatal education.

Aim 4

Aim 4 of the study is to assess client interest in having an online option for prenatal education.

Methods

Sampling

For Aim I, 25 to 75 providers per Georgia perinatal region, a geographical region of the State designated by proximity to a Regional Perinatal Center (Appendix D), were contacted to reach the study goal of 200 providers. In total, 300 surveys were disseminated to practices that provide obstetrical and/or gynecological care in Georgia. These providers were identified through purposive sampling, using established resources such as the Healthy Mothers, Healthy Babies **online provider portal**, the Georgia Department of Public Health's public health districts, and Google predetermined search criteria. Search criteria included "prenatal care," "prenatal education," "OB/GYN," "women's hospital," etc. Eligible providers provide prenatal care and/or prenatal education, and had a representative willing to complete

a mail-in or online survey. We maintained flexibility in reaching the target of contacting 25 providers per perinatal region, and 75 for the Atlanta Perinatal Region, due to the spectrum of practices and population variance between different regions. Therefore, some regions provided more than 25 (e.g. the Savannah Perinatal Region), while others provided fewer than 25 (e.g. the Albany Perinatal Region).

For Aim II, prenatal education programs were identified through purposive sampling. Providers claiming to currently provide prenatal education of any kind were recruited for a phone interview. Those willing to participate were contacted by the research team via phone at a later date. Prenatal education programs or organizations referred to by providers from Aim I were also be contacted via phone and/or email.

Recruitment

Providers identified through purposive sampling were mailed a hard copy of the survey that also had the URL for the online version of the survey. Mailed recruitment materials included one hard copy of the survey (Appendix A), a recruitment flyer (Appendix B), and a return envelope for completed surveys. Should providers wish to participate in the study, they simply mailed back the completed survey or completed the electronic survey online through Survey Monkey. Providers were also contacted for survey completion over-the-phone. Provider names and contact information were stored for the purposes of potential follow-up.

Data Collection

To assess currently available prenatal education efforts and interest in statewide online prenatal education, data collection materials included a survey for providers, focus groups with patients, and a prenatal education curriculum interview with prenatal education providers. Each of the three modes of data collection cater to one of or all of the aims of this study.

Provider Surveys

Surveys (Appendix A) assessing availability of prenatal education were disseminated to eligible providers. Eligible providers include any healthcare providers within the state of Georgia who offer obstetric care (ex. obstetricians, obstetrician gynecologists, nurse practitioners, nurses, midwives, etc.). These surveys contained a combination of closed- and open-ended questions pertaining to the accessibility of prenatal education for families in Georgia (Aim I and II) and the desirability of an online prenatal education platform (Aim III and IV). Surveys consisted of a total of 10 items. Each screened, eligible, and consenting provider elected to complete a mailed, online, or phone survey. Each survey took approximately 5-10 minutes to complete.

Surveys consisted of questions covering prenatal education referral practices, prenatal education offered through the practice/providers, likelihood of practice/provider referral to digital prenatal education resources, and opinions about which topics should be included in prenatal education.

Healthy Mothers, Healthy Babies Coalition of Georgia (HMHBGA) has identified 21 topic areas that may be considered priorities in prenatal education based on existing disparities in race and insurance status, including disparities in outcomes for Medicaid enrolled women. While Georgia's perinatal outcomes are poor across populations, we consistently see stark disparities between privately insured and Medicaid covered mothers. A brief description of each competency can be found in Appendix C. These topics represent a wide range of issues that mothers and families confront throughout pregnancy and early infancy. The competencies aim to either inform mothers of the options they have or to inform mothers about proven best practices to improve health outcomes for themselves and their babies.

Patient Focus Groups

Two focus groups were conducted with patients in Valdosta and Augusta, Georgia (the Albany and Augusta Perinatal Regions, respectively). Each focus group was conducted by one facilitator and one note-taker. The facilitator was responsible for keeping the conversation going and all participants engaged, while the note-taker was responsible for recording major points of agreement/disagreement, body language, approximate rates of participation, and helping to keep time. All focus groups were recorded with the written consent of each participant. The recordings were transcribed, annotated, and de-identified. Recordings and transcripts were kept by HMHBGA in an encrypted folder, used only by HMHBGA staff, and not shared with any outside parties.

In order to gauge the interest of mothers in online prenatal education (Aim I), a focus group with thirteen mothers was conducted through Baby LUV/PAT, an obstetric care

provider and home case management program for high-risk pregnancies in Valdosta, Georgia during September of 2018. Eligibility required that participants be women who had given birth, were currently pregnant, or planned on having children. Eligible women were recruited through Baby LUV/PAT. An additional focus group with five mothers and two fathers was conducted through the Augusta Care Pregnancy Center, a pregnancy resource center and provider of prenatal education in Augusta, Georgia during November of 2018. Eligibility required that participants be women who had given birth, were currently pregnant, or planned on having children. Eligible women were recruited through Augusta Care Pregnancy Center.

Prenatal Education Curriculum Interviews

Once potential prenatal education programs were identified, a member of the research team made contact with program coordinators to ask if they would be willing to participate in the study. Participation in the study required participation in a prenatal education curriculum interview or completion of an online questionnaire and/or provision of prenatal education curriculum to be reviewed by the research team. Each interview took approximately 10-15 minutes to complete and contained questions on course logistics, participant demographics, and course curricula. If a program coordinator was unable to complete an interview, the option to complete an online questionnaire was provided. Additionally, if a member of the research team is unable to reach a program coordinator, missing programmatic information was supplemented through online research.

Analysis

For the purposes of this study, data analysis was conducted based on Georgia Perinatal Regions, rather than based on Georgia Public Health Regions.

Provider Survey Analysis

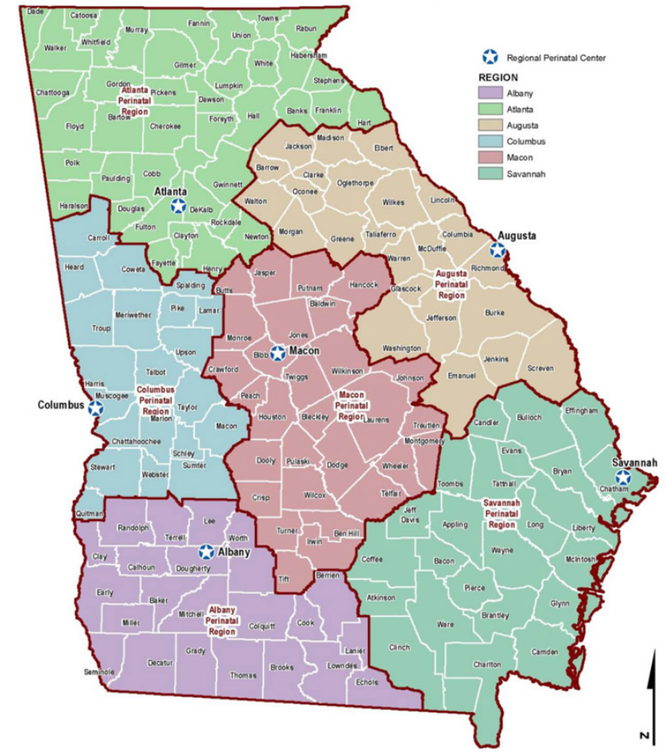
Quantitative analysis was conducted to examine the percentage of responding providers from each perinatal region who refer patients to prenatal education programs and the percentage of responding providers from each perinatal region who offer prenatal education through their practice.

Focus Group Analysis

Both the provider and patient focus groups were analyzed qualitatively using thematic analysis. Thematic analysis was used due to its ability to uncover participant beliefs, values, and motivations.[30] This allowed the research team to understand why mothers and providers believe they would or would not engage with online prenatal education, what they might value in prenatal education, and ways in which mothers and providers might be motivated to engage in digital prenatal education.

Prenatal Educator Interview Analysis

Quantitative analysis was conducted to examine what percentage of prenatal education programs provide each prenatal education competency. In addition, analysis was conducted to understand who is utilizing the programs in terms of age, race, and other available demographic variables.



Results

Provider Surveys

A total of 216 providers from different Perinatal Regions were surveyed for the purposes of this study: 23 (10.65%) were from the Albany Perinatal Region, 90 (41.67%) were from the Atlanta Perinatal Region, 24 (11.11%) were from the Augusta Perinatal Region, 26 (12.04%) were from the Columbus Perinatal Region, 25 (11.57%) were from the Macon Perinatal Region, and 28 (12.96%) were from the Savannah Perinatal Region.

Respondents identified 52 hospitals or medical centers to which they are providing referrals for prenatal education. Of the 52 identified hospitals and medical centers, 3 (5.77%) are in the Albany Perinatal Region, 23 (44.23%) are in the Atlanta Perinatal Region, 9 (16.98%) are in the Augusta Perinatal Region, 5 (9.62%) are in the Columbus Perinatal Region, 3 (5.77%) are in the Macon Perinatal Region, and 9 (16.98%) are in the Savannah Perinatal Region.

Of the 202 providers who responded to questions regarding their prenatal education practices, 100 provided prenatal education referrals to their patients, while 93 provided prenatal education through their own practice. Seventeen providers do not offer prenatal education or prenatal education referrals, while 34 providers offer prenatal education and prenatal education referrals. Among the 134 providers who refer their patients to a prenatal education program, 112 (55.45%) refer to a local hospital, 5 (2.48%) refer to the local health department, 1 (0.51%) refer to an online program, 0 (0%) refer to a mobile app, and 16 (7.92%) refer to another source. Example of other sources for referrals include (but are not limited to): other providers' offices, pregnancy resource centers, classes offered outside of hospital or health department settings such as peer support groups at community centers, and educational print materials such as pamphlets or books. For a breakdown of prenatal education referral practices by perinatal region, refer to Table I. The three most common reasons for referral to a specific location include the program being offered at the provider's delivery facility, proximity to the provider's office, and location convenience. For a breakdown of reasons for prenatal education referrals by perinatal region, refer to Table II.

Table I.
Prenatal Education Referral Practices by Perinatal Region (N = 202)

Referral Location	All Regions N=202	Albany N=22	Atlanta N=84	Augusta N=22	Columbus N=24	Macon N=23	Savannah N=27
Local Hospital	112 (55.45%)	13 (59.10%)	38 (45.24%)	15 (68.18%)	15 (62.50%)	15 (65.22%)	16 (59.26%)
Health Dept.	5 (2.48%)	0 (0.00%)	3 (3.57%)	0 (0.00%)	0 (0.00%)	1 (4.35%)	1 (3.70%)
Online Program	1 (0.51%)	0 (0.00%)	1 (1.19%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Mobile App	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Other	16 (7.92%)	0 (0.00%)	10 (11.90%)	2 (9.10%)	1 (4.17%)	0 (0.00%)	3 (11.11%)
No Referral*	68 (33.66%)	9 (40.91%)	32 (38.10%)	5 (22.73%)	8 (33.33%)	7 (30.43%)	7 (25.93%)

**Includes some providers who indicated offering prenatal education through their own practice.*

Table II.
Reason for Prenatal Education Referral by Perinatal Region (N=134; Respondents indicated multiple answer options)

Reason for Referral	All Regions (N=134)	Albany (n=13)	Atlanta (n=52)	Augusta (n=17)	Columbus (n=16)	Macon (n=16)	Savannah (n=20)
Delivery Facility	107 (79.85%)	11 (84.62%)	38 (73.08%)	14 (82.35%)	15 (93.75%)	15 (93.75%)	14 (70.00%)
Close to Office	78 (6.00%)	7 (53.85%)	46 (88.46%)	5 (29.41%)	3 (18.75%)	7 (43.75%)	10 (50.00%)
Close to Patients	62 (46.27%)	5 (38.46%)	36 (69.23%)	5 (29.41%)	4 (25.00%)	5 (31.25%)	7 (35.00%)
Convenient	75 (55.98%)	10 (76.92%)	42 (80.77%)	7 (41.18%)	5 (31.25%)	7 (43.75%)	4 (20.00%)
Affiliation	20 (14.93%)	3 (23.08%)	11 (21.15%)	2 (11.76%)	1 (6.25%)	2 (12.50%)	1 (5.00%)
Reputation	73 (54.48%)	5 (38.46%)	32 (61.54%)	16 (94.12%)	4 (25.00%)	7 (43.75%)	9 (45.00%)
Content	65 (48.51%)	4 (30.77%)	34 (65.38%)	7 (41.18%)	5 (31.25%)	8 (50.00%)	7 (35.00%)

Among the 216 participants, 204 providers indicated how likely they would be to refer patients to online or mobile app prenatal education. Answers were provided on a Likert Scale (1 = very unlikely, 2 = unlikely, 3 = likely, 4 = very likely). The average likelihood for referring patients to evidence-based online prenatal education was 3.55 (SD = 0.75) indicating that providers are, on average, very likely to refer patients to online education. The average likelihood for referring patients to an evidence-based prenatal education mobile app was 3.53 (SD = 0.75), indicating that providers are also, on average, very likely to refer patients to mobile app education. For examples of feedback received from providers regarding online and mobile app prenatal education, refer to Table V.

Table III.
Providers indicating likelihood to refer patients to evidence-based online prenatal education (N = 204)

Likelihood to Refer	All Regions N=204	Albany N=21	Atlanta N=83	Augusta N=24	Columbus N=25	Macon N=23	Savannah N=28
Very Unlikely	7 (3.43%)	1 (4.77%)	2 (2.40%)	2 (8.33%)	1 (4.00%)	0 (0.00%)	1 (3.58%)
Unlikely	11 (5.40%)	1 (4.77%)	8 (9.63%)	1 (4.17%)	0 (0.00%)	0 (0.00%)	1 (3.58%)
Likely	48 (23.52%)	0 (0.00%)	24 (28.91%)	3 (12.5%)	5 (20.00%)	7 (30.43%)	9 (32.14%)
Very Likely	138 (67.64%)	19 (90.47%)	49 (59.03%)	18 (75.00%)	19 (76.00%)	16 (69.57%)	17 (60.71%)

Table IV.
Providers indicating likelihood to refer patients to evidence-based mobile app for prenatal education (N= 203)

Likelihood to Refer	All Regions N=203	Albany N=21	Atlanta N=83	Augusta N=24	Columbus N=25	Macon N=22	Savannah N=28
Very Unlikely	8 (3.94%)	1 (4.77%)	2 (2.40%)	2 (8.33%)	1 (4.00%)	1 (4.54%)	1 (3.58%)
Unlikely	7 (3.44%)	0 (0.00%)	5 (6.02%)	1 (4.17%)	1 (4.00%)	0 (0.00%)	0 (0.00%)
Likely	57 (28.07%)	2 (9.52%)	25 (30.12%)	3 (12.5%)	7 (28.00%)	8 (36.37%)	12 (42.85%)
Very Likely	131 (64.53%)	18 (85.71%)	51 (61.44%)	18 (75.00%)	16 (64.00%)	13 (59.10%)	15 (53.57%)

Table V.
Feedback from Providers Regarding Online and Mobile App Prenatal Education

Type of Feedback	Sample Provider Quotes
Favorable Feedback	“Very rural, online would be great.”
	“Many of our patients are unable or unwilling to travel for classes. Having classes online would be a helpful resource.”
	“Many patients are already using apps for pregnancy information, so having a free app for them to use for childbirth education would be helpful.”
	“Clients have limited access to the Internet; might be more likely to use app [than online resource].”
	“Mothers are not coming to traditional classes, they prefer online. Meets today’s mothers’ needs.”
	“This would be an excellent and natural partnership for substance use treatment for pregnant and postpartum women.”
	“It would give standardized information.”
	“I would love to be kept up-to-date on this and provide this for our patients in the future. The hospital has a website, and we could always advertise this. I enjoy teaching the classes, but we really do not have a great turn-out for the number of deliveries we do.”
	“It is convenient and could help fill a small gap in care. The education in prenatal visits is limited and affordability for private classes is an issue for many. Regardless of socioeconomic status, all birthing families need education.”
	“I have hospitals that are in my region that would benefit from this, since they do not have other options.”

Table V.
Feedback from Providers Regarding Online and Mobile App Prenatal Education

Type of Feedback	Sample Provider Quotes
Constructive Feedback	“We already offer an app, so we would be less likely to refer to another one.”
	“There should be Spanish language options.”
	“Would refer to app based on content, but prioritize in-person contact.”
	“Online/app resources should be free.”
	“Limited English proficiency, illiteracy, access to device/data to access service.”
	“I think they learn better in-person.”
	“Evidence-based is much preferred over Google.”
	“Group participation is far superior to an online experience. It may not meet the needs of women delivering outside the hospital. There is usually no opportunity for interaction.”
	“We prefer our own prenatal class (we can educate patients about what we do)… A state sponsored class would likely be too generic.”
	“With an online program, set up with modules, for example. On each of these topics, patients could choose topics that interest them most.”

Among the 216 participants, 94 providers responded to the question, “What are a few topics that come to mind when you think of prenatal education?” The five most common responses to this question include breastfeeding (N = 63), newborn or infant care (N = 42), birth options (N = 42), pain management (N = 24), and nutrition (N = 20). Other common responses include (but are not limited to): postpartum care, prenatal care, medication and/or prenatal vitamins, labor and delivery, maternal mental health (i.e. postpartum depression and/or stress), pregnancy complications, physical activity or exercise, bonding, and stages of pregnancy.

Among the 216 participants, 204 providers responded to the question, “Which of the following topics should be included in prenatal education?” In terms of prenatal information, 186 (91.17%) providers indicated that birthing options should be included, 188 (92.15%) indicated that stages of pregnancy should be included, 148 (72.54%) indicated that oral health should be included, 184 (90.19%) indicated that prenatal care should be included, and 140 (68.62%) indicated that HIV and STI prevention should be included.

In terms of postnatal information, 185 (90.68%) providers indicated that maternal mental health should be included, 191 (93.62%) indicated that postpartum care for mom should be included, 202 (99.01%) providers indicated that breastfeeding should be included in prenatal education, 181 (88.72%) indicated that family planning should be included, 166 (81.37%) indicated that birth spacing should be included, 183 (89.70%) indicated that car seat safety should be included, 186 (91.17%) indicated that information about safe sleep practices should be included, 190 (93.13%) indicated that newborn care should be included, and 179 (87.74%) indicated that information about vaccines should be included.

In terms of financial resource information, 130 (63.72%) providers indicated that health insurance information should be included and 152 (74.50%) indicated that information about Georgia’s Planning for Healthy Babies Program should be included. For a breakdown of which topics providers believe should be included in prenatal education by perinatal region, refer to Table VI.

Table VI.
Which Topics Providers Believe Should Be Included in Prenatal Education by Perinatal Region (N = 204)

Curriculum Topic*	All Regions (N=204)	Albany (n=22)	Atlanta (n=82)	Augusta (n=24)	Columbus (n=26)	Macon (n=22)	Savannah (n=28)
Breastfeeding	202 (99.01%)	22 (100%)	82 (100%)	24 (100%)	26 (100%)	21 (95.46%)	27 (96.42%)
Family Planning	181 (88.72)	20 (90.90%)	70 (85.37%)	21 (87.50%)	22 (84.61%)	20 (90.90%)	28 (100%)
Safe Sleep	186 (91.18%)	22 (100%)	71 (86.59%)	21 (87.50%)	26 (100%)	21 (95.46%)	25 (89.30%)
Birthing Options	186 (91.17%)	20 (90.90%)	71 (86.58%)	23 (95.83%)	26 (100%)	22 (100%)	24 (85.71%)
Car Seat Safety	183 (89.70%)	21 (95.45%)	69 (84.14%)	20 (83.33%)	26 (100%)	22 (100%)	25 (89.28%)
Pregnancy Stages	188 (92.15%)	22 (100%)	74 (90.24%)	21 (87.50%)	24 (92.30%)	22 (100%)	25 (89.28%)
Mental Health	185 (90.68%)	22 (100%)	71 (86.58%)	21 (87.50%)	25 (96.15%)	21 (95.45%)	25 (89.28%)
Postpartum Care	191 (93.62%)	22 (100%)	74 (90.24%)	22 (91.66%)	25 (96.15%)	22 (100%)	26 (92.85%)
Oral Health	148 (72.54%)	19 (86.36%)	52 (63.41%)	18 (75.00%)	21 (80.76%)	17 (77.27%)	21 (75.00%)
Prenatal Care	184 (90.19%)	22 (100%)	72 (87.80%)	20 (83.33%)	25 (96.15%)	20 (90.90%)	25 (89.28%)
HIV/STI Prevention	140 (68.62%)	19 (86.36%)	55 (67.07%)	16 (66.66%)	18 (69.23%)	14 (63.63%)	18 (64.28%)
Birth Spacing	166 (81.37%)	18 (81.81%)	63 (76.82%)	18 (75.00%)	25 (96.15%)	20 (90.90%)	22 (78.57%)
Health Insurance	130 (63.72%)	20 (90.90%)	46 (56.09%)	14 (58.33%)	20 (76.92%)	13 (59.09%)	17 (60.71%)
Newborn Care	190 (93.13%)	21 (95.45%)	72 (87.80%)	22 (91.66%)	26 (100%)	22 (100%)	27 (96.42%)
Vaccines	179 (87.74%)	21 (95.45%)	69 (84.14%)	21 (87.50%)	23 (88.46%)	20 (90.90%)	25 (89.28%)
Planning for Healthy Babies	152 (74.50%)	19 (86.36%)	58 (70.73%)	15 (62.50%)	21 (80.76%)	17 (77.27%)	22 (78.57%)

**See Appendix C for a full description of each curriculum topic.*

Patient Focus Groups

The first focus group was held on September 6, 2018 at Baby LUV/PAT, an obstetric care provider and home case manager for high-risk pregnancies in Valdosta, Georgia. Twelve non-Hispanic, Black/African-American women attended this focus group. The average age of participants was 29.5 years. Participants had an average of between one and two children, and only one was pregnant at the time of the focus group. Of the twelve participants, seven reported seeing a physician as their obstetric care provider, one reported seeing a midwife, one reported seeing a nurse practitioner, one reported seeing both a midwife and a nurse practitioner, and two reported not receiving obstetric care. Finally, six participants were insured through the Georgia Families Medicaid Care Management Organizations (CMO) plans (Amerigroup, CareSource, Peach State, and Wellcare), two were privately insured, one was insured through Tricare, one was insured through Medicare, and two were uninsured.

The second focus group was held on November 20, 2018 at the Augusta Care Pregnancy Center, a pregnancy resource center and provider of prenatal education in Augusta, Georgia. Seven individuals of varying ages, races, and genders attended this focus group; participants included two non-Hispanic, white men between the ages of 23 and 36 with one child and eight children, respectively, and five non-Hispanic, Black/African-American women with an average age of 35.6 years and between two or three children. Only one participant was pregnant at the time of the focus group. Of the five female participants, all reported seeing a physician as their obstetric care provider, with one reporting also seeing a nurse. Three participants were insured through Medicaid (specifically the Georgia Families CMO plan known as Wellcare), two were uninsured, and two were privately insured.

Three key themes were extracted from the focus group discussions with patients: (1) prenatal education accessibility, (2) patient learning objectives, and (3) feedback for online or mobile app programs. For sample quotes which accompany the three themes, refer to Table V.

The theme, *prenatal education accessibility*, includes any mention of ease of access of prenatal education; this may include class time, day, or location, among other things, which may serve as either facilitators or barriers to prenatal education uptake. Similarities between what patients in Valdosta and patients in Augusta identify as barriers to prenatal education accessibility include adequate transportation to and from classes and inconvenient class timing. While a “hands-on” or “interactive” teaching style was highlighted by both groups as facilitators for prenatal education uptake. According to patients in Valdosta, lack of trust in their educator can serve as a barrier to prenatal education, while the provision of on-site childcare and refreshments serve as facilitators. Patients in Augusta view their work schedules as barriers to prenatal education and curriculum topics such as postpartum care, post-baby fitness, and specific information regarding caesarean sections as facilitators.

The theme, *patient learning objectives*, includes any mention of what patients would like to see included in prenatal education curricula. Both patients in Valdosta and patients in Augusta identified greater information on Cesarean section procedures as learning objectives. However, patients in Valdosta identified physical health (such as hydration, physical activity, and nutrition) and social support (from family and friends) as additional learning objectives, while patients in Augusta identified breathing exercises during labor, stages of labor, and infant massage as additional learning objectives.

The theme, *feedback for online or mobile app programs*, includes any mention of positive, negative, or neutral attitudes towards possible online or mobile app-based prenatal education programs by patients. Both patients in Valdosta and patients in Augusta identified feedback for programs as wanting to be “face-to-face” with an educator or instructor and concerns over whether wireless connection requirements might make accessing the programs difficult. The majority of patients in both focus groups expressed support for in-person rather than online or mobile app-based prenatal education programs, however members of both groups expressed appreciation for complementary remote options. Patients wanted the option of attending both in-person and online prenatal education programs. Patients expressed an interest in having options for prenatal education, particularly for those that were employed and those that did not have reliable transportation.

Table VII.
Sample Quotes from Focus Group Patients by Theme

Theme	Sample Valdosta Patient Quotes	Sample Augusta Patient Quotes
Prenatal Education Accessibility	"If you want to have the option of an epidural, you have to take the epidural class… and they also offer [inaudible] birthing class, like an extension of the epidural class, at South Georgia [hospital]… and then they have a breastfeeding class you can come back to, so my provider talked to me about attending all of those classes."	"I think if you encourage providers to start telling people what they should do, other people I've talked to said, 'Oh yeah, you should probably take some kind of class.' …So I think if you give them incentives it's a win-win situation, because when they come they're here to learn."
	"Having to drive to a class can be a disadvantage, if you don't have a car or transportation."	"In low income communities… A lot of those ladies, just, no one's ever told them that it's important to do stuff like that [prenatal education]. So I think if you could have people that would want to go out into the community and like, even if they wanted to do it in your home or something like that, that might give more interest… because they don't even know, the ladies."
Patient Learning Objectives	"I learned more from my nurse, from my nurses. Like for my first son, I had preeclampsia, so I didn't know what was going on. My mom told me about the C-section, which she had, but it's like I learned more from the nurses because they actually told me—they actually helped me more with the pain, and how to deal with the C-section."	"We had a Bradley class. They told you like labor stuff and like the different steps and labor in different levels and stuff. So I knew what to expect when my wife was changing from one step to another when she was about to give birth—because she gave birth from the side of the road. So it was good to know."
	"More birthing options, like a water birth or more about having like a doula, something like that… And postpartum, more like 'Mommy and Me' kind of classes, or parenting classes…"	"The breathing was very important. And knowing what to expect as you go along… It's good to know what to expect instead of things happening. You're freaking out like, 'What's that?' Well, because I remember the first time when I was pregnant and the baby started moving, I was like, 'What is this?'"
Feedback for Online or Mobile App Program	"Not having the capabilities, the WiFi or Internet… or the time to go on there and focus. A lot of people do better when they're face-to-face…"	"…you can't replace the people that you get to meet… different kinds of people… experiencing the same thing, so on so forth. That interaction's a lot better than just sitting there glued to a phone, just missing out on people…"
	"I might do it if there was [live] feedback."	"If a doctor, and higher power, says go look at this and we'll do research on it, I'll do it."
	"Watching at my convenience would be good"	"Free access; I can do it while I get ready… My brain works better in the afternoon than the morning… doing it when I feel up to it."

Prenatal Educator Curriculum Interviews

Prenatal education curriculum responses were collected for 120 prenatal education courses at 52 hospitals and health centers throughout the state of Georgia. Of the 120 courses, 6 (5%) occur in the Albany Perinatal Region, 49 (40.83%) occur in the Atlanta Perinatal Region, 18 (15%) occur in the Augusta Perinatal Region, 15 (12.5%) occur in the Columbus Perinatal Region, 12 (10%) occur in the Macon Perinatal Region, and 20 (16.67%) occur in the Savannah Perinatal Region.

The average number of participants in each course varies by class and perinatal region, ranging from one or two individuals to 40 individuals (20 couples or pairs) at a time. Participants were most often described as being in their late second or third trimesters, aged twenty to thirty years, racially and ethnically diverse, and bringing support persons (i.e. spouses, partners, parents, siblings, grandparents, and/or friends).

Instructors were most commonly labor & delivery nurses dually trained as lactation consultants and counselors, with very few nurse practitioners, or midwives teaching courses. The most common identified certifications were International Board Certified Lactation Consultant (IBCLC) and Certified Lactation Consultant (CLC). Followed behind those certifications were, Certified Childbirth Educator (CCE). The most common curricula courses are based on include: Lamaze, Injoy, Centering Pregnancy, and Customized Communications Inc. ("The Gift of Motherhood").

The majority of respondents reported basing their curricula on pre-existing and/or evidence-based programs and indicated that they do conduct evaluations of their courses. Although, the majority are only capturing satisfaction rates, as opposed to measuring knowledge gains and evaluating overall impact of the course(s). Overall, 53.3% (N = 64) of courses are free, 12.5% (N = 15) cost between $1 and $25, 21.7% (N = 26) cost between $26 and $50, 8.3% (N = 10) cost between $51 and $75, and 4.2% (N = 5) cost between $76 and $100. Table VI provides information on course cost among each perinatal region.

Table VIII.
Cost of Prenatal Education Courses by Perinatal Region (N = 120)

Cost of Course	All Regions N=120	Albany N=6	Atlanta N=49	Augusta N=18	Columbus N=15	Macon N=12	Savannah N=20
Free	64 (53.30%)	6 (100%)	9 (18.40%)	18 (100%)	7 (46.70%)	10 (83.40%)	14 (70.00%)
$1-25	15 (12.50%)	0 (0.00%)	11 (22.40%)	0 (0.00%)	2 (13.30%)	1 (8.30%)	1 (5.00%)
$26-50	26 (21.70%)	0 (0.00%)	16 (32.70%)	0 (0.00%)	5 (33.30%)	1 (8.30%)	4 (20.00%)
$51-75	10 (8.30%)	0 (0.00%)	8 (16.30%)	0 (0.00%)	1 (6.70%)	0 (0.00%)	1 (5.00%)
$76-100	5 (4.20%)	0 (0.00%)	5 (10.20%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Courses were offered during a variety of times and days; however, most were held on weeknights. While most classes consist of only one session, some classes consist of as many as eight sessions. Additionally, while the majority of classes were between 1 and 3 hours long, about a third of classes were between 4 and 8 hours long. Information regarding number of class sessions and length of classes was collected for 68 out of 120 courses. Table IX provides information on the class timing for each region.

Table IX.
Prenatal Education Class Timing by Perinatal Region* (N = 68)

Day	Time	All Regions N=68	Albany N=4	Atlanta N=23	Augusta N=10	Columbus N=7	Macon N=7	Savannah N=17
Weekday	Morning	3 (4.40%)	1 (25.00%)	2 (8.70%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Afternoon	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Evening	37 (54.40%)	3 (75.00%)	10 (43.50%)	7 (70.00%)	4 (57.10%)	3 (42.90%)	10 (58.80%)
Weekend	Morning	8 (11.80%)	0 (0.00%)	8 (34.80%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
	Afternoon	16 (23.50%)	0 (0.00%)	3 (13.00%)	1 (10.00%)	3 (42.90%)	3 (42.90%)	6 (35.30%)
	Evening	4 (5.90%)	0 (0.00%)	0 (0.00%)	2 (20.00%)	0 (0.00%)	1 (14.20%)	1 (5.90%)

**Information regarding class timing was collected for 68 out of the 120 total courses.*

Out of the 120 total courses, curriculum-specific information was provided for 105. In terms of prenatal information, 53 (50.48%) prenatal education courses include birthing options, 25 (23.81%) include fetal development, 11 (10.48%) include oral health, 16 (15.24%) include finding prenatal care, 16 (15.24%) include prenatal visits, 22 (20.95%) include prenatal vitamins, 41 (39.05%) include types of providers, 32 (30.48%) include maternal mental health, and 10 (9.52%) indicated that HIV and STI transmission should be included.

In terms of postnatal information, 60 (57.14%) include postpartum care for mom, 63 (60%) include breastfeeding, 23 (21.90%) include birth control options, 13 (12.38%) include pregnancy spacing, 36 (34.29%) include car seat safety, 43 (40.95%) include safe sleep practices, 45 (42.86%) include newborn screening, 55 (52.38%) include infant care, and 33 (31.43%) include immunization information.

In terms of financial resource information, 12 (11.43%) include health insurance information, 11 (10.48%) include information on the Special Supplemental Nutrition Program (SSNP) for Women, Infants, and Children (WIC), and 9 (8.57%) include information on the Planning for Healthy Babies Program (P4HB). For a breakdown of which topics course instructors believe should be included in prenatal education by perinatal region, refer to Table X.

Table X.
Inclusion of Prenatal Education Topics in Courses by Perinatal Region (N = 105)

Curriculum Topic*	All Regions	Albany	Atlanta	Augusta	Columbus	Macon	Savannah
Finding Prenatal Care	16 (15.24%)	2 (33.33%)	3 (10.00%)	4 (25.00%)	2 (14.29%)	2 (16.67%)	3 (17.65%)
Prenatal Vitamins	22 (20.95%)	2 (33.33%)	6 (15.00%)	6 (37.50%)	2 (14.29%)	4 (33.33%)	2 (11.76%)
Prenatal Visits	16 (15.24%)	2 (33.33%)	4 (10.00%)	2 (12.50%)	2 (14.29%)	2 (16.67%)	4 (23.53%)
Dental Care	11 (10.48%)	2 (33.33%)	4 (10.00%)	2 (12.50%)	1 (7.14%)	1 (8.33%)	1 (5.88%)
Immunizations	33 (31.43%)	2 (33.33%)	9 (22.50%)	7 (43.75%)	6 (42.86%)	4 (33.33%)	5 (29.41%)
Fetal Development	25 (23.81%)	2 (33.33%)	6 (15.00%)	5 (31.25%)	2 (57.14%)	3 (25.00%)	7 (41.18%)
Types of Providers	41 (39.05%)	2 (33.33%)	19 (47.50%)	7 (43.50%)	6 (42.86%)	2 (16.67%)	5 (29.41%)
Birthing Options	53 (50.48%)	3 (50.00%)	21 (52.50%)	9 (56.25%)	7 (50.00%)	4 (33.33%)	9 (52.94%)
HIV/STI Transmission	10 (9.52%)	2 (33.33%)	3 (7.50%)	1 (6.25%)	1 (7.14%)	2 (16.67%)	1 (5.88%)
Postpartum Care	60 (57.14%)	4 (66.67%)	26 (65.00%)	9 (56.25%)	7 (50.00%)	5 (41.67%)	9 (52.94%)
Mental Health (PPD)	32 (30.48%)	2 (33.33%)	8 (20.00%)	6 (37.50%)	5 (35.71%)	5 (41.67%)	6 (35.29%)
Breastfeeding	63 (60.00%)	4 (66.67%)	16 (40.00%)	10 (62.50%)	14 (100.00%)	8 (66.67%)	11 (64.71%)
Newborn Screening	45 (42.86%)	2 (33.33%)	13 (32.50%)	6 (37.50%)	8 (57.14%)	7 (58.33%)	9 (52.94%)
Infant Care	55 (52.38%)	2 (33.33%)	14 (35.00%)	9 (56.25%)	10 (71.43%)	8 (66.67%)	12 (70.59%)
Safe Sleep	43 (40.95%)	2 (33.33%)	12 (30.00%)	7 (43.75%)	5 (35.71%)	8 (66.67%)	9 (52.94%)
Car Seat Safety	36 (34.29%)	2 (33.33%)	11 (27.50%)	6 (37.50%)	3 (21.43%)	6 (50.00%)	8 (47.06%)
Insurance Postpartum	12 (11.43%)	1 (16.67%)	3 (7.50%)	4 (25.00%)	1 (7.14%)	2 (16.67%)	1 (5.88%)
The WIC Program	11 (10.48%)	1 (16.67%)	2 (5.00%)	2 (12.50%)	4 (28.57%)	1 (8.33%)	1 (5.88%)
The P4HB Program	9 (8.57%)	1 (16.67%)	3 (7.50%)	2 (12.50%)	1 (7.14%)	1 (8.33%)	1 (5.88%)
Birth Control Options	23 (21.90%)	1 (16.67%)	4 (10.00%)	4 (25.00%)	6 (42.86%)	4 (33.33%)	4 (23.53%)
Pregnancy Spacing	13 (12.38%)	1 (16.67%)	4 (10.00%)	4 (25.00%)	0 (0.00%)	2 (16.67%)	2 (11.76%)

See Appendix C for a full description of each curriculum topic.

Conclusion

Provider Surveys

About half of the providers surveyed refer their patients outside of their practice for prenatal education, while the other half reported providing prenatal education to their patients through their own practice. Of those providers that reported providing prenatal education within their own practice, many of these providers considered informational pamphlets as a means of prenatal education. Less than 10% of providers surveyed neither provided prenatal education through their own practice nor provided patient referrals for prenatal education.

Among those who provide prenatal education referrals to their patients, the vast majority across all five perinatal regions refer their patients to local hospitals. Referrals to online programs or mobile apps for prenatal education by providers was uncommon.

The two most common reasons for referral to a specific location include the program being offered at the provider's delivery facility and proximity to the provider's office.

Across all five perinatal regions, providers were, on average, very likely to refer their patients to evidence-based online and mobile app-based prenatal education programs. Though some providers indicated a preference for in-person education and/or patient contact, others highlighted the potential for such remote options to meet access needs, particularly in rural settings.

Of those providers that reported providing prenatal education within their own practice, many of these providers considered informational pamphlets as a means of prenatal education.

Across all five perinatal regions, providers prioritized breastfeeding, postpartum care for mothers, and newborn care as prenatal education topics. In contrast, providers indicated that health insurance literacy, HIV/STI prevention, and oral health should be given the least priority as prenatal education topics.

Patient Focus Groups

Similarities between what patients in Valdosta and patients in Augusta identify as barriers to prenatal education accessibility include transportation to and from classes and class timing, while facilitators include a "hands-on" or "interactive" teaching style. Additionally, similarities between what patients in Valdosta and patients in Augusta identify as learning objectives include greater information on postpartum care and cesarean section procedures. More than half of the women had delivered via cesarean section and felt unprepared for postpartum changes after the surgery. Patients demanded additional information on the procedure and perceived the current availability of education on this topic to be insufficient. Patients in both groups reported a number of services and classes available during pregnancy, but felt "deserted" after delivery. Patients reported that they wanted information on postpartum fitness

and ways to reconnect with their bodies after pregnancy and childbirth. Finally, both patients in Valdosta and patients in Augusta identified feedback for online or mobile app-based prenatal education programs as wanting to be “face-to-face” with an educator or instructor and concerns over whether wireless connection requirements might make accessing the programs difficult. However, patients in both groups were very receptive to online or mobile-based education and additional ways to connect to education in the face of transportation or class timing barriers. During the focus group, patients received a set of cards with the names of places they might receive information on pregnancy or childbirth, they were asked to place the cards in order of the most trusted source. The cards included: provider, friends, family, books, social media, online via research organizations, baby websites, mommy blogs, and prenatal education classes. Both patient groups listed their provider as the number one source for trusted information, followed by family and other online forms of education. This activity demonstrated the trust patients have for their providers and the need for providers to utilize that trust in a way to steer them toward quality prenatal education either online or in-person.

Prenatal Educator Curriculum Interviews

Across all five perinatal regions, over half of all prenatal education courses are free. The majority of courses that cost between $26 and $100 are concentrated within the Atlanta Perinatal Region (a predominantly urban region), whereas the majority of courses in predominantly rural regions, such as Albany, Augusta, and Macon, are free. Overall, most classes consisted of only one session, were between 1 and 3 hours long, and were offered during weeknights.

Across all five perinatal regions, prenatal educators indicated that information regarding breastfeeding, infant care, and birthing options was most likely to be included in their courses. In contrast, prenatal educators indicated that information regarding the Planning for Healthy Babies Program (P4HB), HIV/STI prevention, and the Special Supplemental Nutrition Program (SSNP) for Women, Infants, and Children (WIC) Program was least likely to be included in their courses. Educators assume that these topics are being discussed with the providers or with public health professionals. Others assume that the content topics do not apply to their client base, assuming they are privately insured women. In contrast, some prenatal educators are not familiar with these programs and do not feel comfortable teaching on health literacy. These findings reflect the results of provider surveys, wherein providers indicated that prenatal education topics such as breastfeeding and newborn care should be prioritized, while topics such as HIV/STI prevention should not be prioritized in prenatal education.

Limitations

The study was limited to self-reported data from both obstetric care providers, and prenatal education providers. By virtue of self-reported data alone, the data was reliant on honesty from participants and a variance in understanding or interpretation of particular questions. For example, some providers responded to the survey reporting that they offered prenatal education classes, but were referring to pamphlets as prenatal education. While pamphlets are important and helpful tools, they do not produce the same outcome and did not fit into the definition of prenatal education provided. Similarly, most prenatal educators reported that they evaluated the classes offered, but were referring to satisfaction surveys as a form of evaluation. Very few had an evaluation and tracking effort that measured knowledge gain or behavior change.

Recommendations

The Referral Process

About half of the providers surveyed indicated that they refer their patients or prenatal education, however, examining what exactly is occurring at this level is crucial. A warm referral process wherein providers have developed relationships with the prenatal educators and facilities that they are referring their patients to ensures patients are accessing critical health education. Patients value the word of their care providers and respond favorably to active referrals to quality prenatal education. If possible, providers are encouraged to utilize paraprofessionals like community health workers, doulas, office support staff, or other perinatal health workers to build relationships with the educators and facilities of which they are referring. In addition, Healthy Mothers, Healthy Babies will release a referral guide for each perinatal region including options for prenatal education in the area, topics

covered, and if any cost is associated with the class. These referral guides will be made available on our website for download and we will be hosting prenatal education convening sessions in each region based on the findings in this report. All referral guides and toolkits will be available along with technical assistance to best utilize the tools.

Additionally, the development of a recommended timeline for prenatal education referrals as a means of encouraging providers to discuss prenatal education with their patients as early and often as possible would be highly beneficial, as many prenatal educators noted in their interviews that certain topics must be covered far earlier in their patients' pregnancies. Finally, regularly checking-in and following-up with patients regarding prenatal education is necessary so that providers and staff can ensure the referral was utilized and useful to the client(s).

Gaps in Education

Overwhelmingly, topics such as health insurance literacy, STI prevention, WIC and Planning for Healthy Babies (P4HB) were widely absent from prenatal education curriculum across the State, or deemed less important by educators and providers alike. In 2017, Medicaid births accounted for 58% of births in the State of Georgia.[31] This number reflects the pressing need to include health insurance information and other information on public health programs, as this is relevant information for a significantly large portion of our pregnant population. Empowering patients with health program information that may prevent disease or mortality could help patients, particularly women of color throughout our State, navigate complicated health systems and achieve better birth outcomes. Furthermore, enrollment in programs like WIC and P4HB experience enrollment fluctuation often resulting in a decline in participation. For example, in 2017 P4HB reported that there were 109,373 women eligible for family planning (and deemed in need of family planning), but only 19.4% of those women were enrolled in the program.[32] We suspect that closing the gap on health literacy in prenatal education will increase awareness of supportive public health programs.

Additionally, patients expressed a desire for postpartum education classes during focus group sessions, noting, "after you have the baby, you're deserted" The desire for postpartum information was a clear theme throughout each focus group. This theme may help explain the findings of the most recent Georgia Maternal Mortality Review Committee (MMRC) report. The report highlighted that 60% of the pregnancy-related deaths occurred within the first 42 days after the end of the pregnancy.[33] The postpartum period is an important time period to focus on educating mothers and families on post-birth warning signs. We recommend including information from the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) on post-birth warning signs in prenatal education curriculum. In addition, both focus groups reported a desire for additional information on cesarean sections. Patients expressed that they felt unprepared for the procedure and would have preferred more information on what to expect. According to the Centers for Disease Control and Prevention, Georgia has a 33.8 per 1,000 births, cesarean delivery rate, higher than the national average of 31.9.[34] These statistics align with the feedback received from both patient focus groups. We encourage the inclusion of pertinent information on cesarean sections, both on procedure and potential impact on emotional and physical healing during postpartum.

Necessity of Evaluation

The majority of prenatal educators indicated that they conduct evaluations of their courses, but many only evaluated for satisfaction versus measuring impact and knowledge gained. Healthy Mothers, Healthy Babies Coalition of Georgia recommends evaluation and tracking that measure satisfaction and knowledge gained. We encourage adoption of our current model of evaluation that includes a follow-up for participants at the 2 week, 3 month and 6 month mark, if possible. Currently, HMHB gathers data from participants at these markers to inform our prenatal education program. Our last report indicated the following:

- Pre/post-test indicated that participants had the greatest knowledge gains in birth spacing, safe sleep practices, and HIV transmission

- 3 month surveys demonstrated 83.9% of participants had talk to their healthcare provider about birth control. 81.7% reported having a vaginal delivery, and 67.7% had initiated breastfeeding after giving birth

- 6 month surveys demonstrated 100% of participants had taken their babies to their newborn appointments, 96% had visited their doctor for their postpartum check-up, and 85.7% were currently offering their babies breastmilk

We would like to see evaluation and tracking being implemented for all prenatal education classes across the State. This will also help define prenatal education across the State, which based on the findings in this report could currently encompass pamphlets, a brief discussion with a provider in-office, or a multi-day evidence-based curriculum. We hope that including tracking and evaluation will improve each curriculum and focus efforts on outcomes.

Online and Mobile App Prenatal Education

The support of providers is crucial to the successful rollout of online or mobile app-based prenatal education programs. Patients in both focus groups claimed to hold recommendations from their physicians or obstetricians in high esteem. However, a number of patients in both focus groups also noted that they saw their nurses, nurse practitioners, and/or midwives more frequently than their physician or obstetrician during their pregnancies, meaning that the support of these providers is also an important consideration for successful program rollout. Additionally, patients in both focus groups noted the important role family members (and sometimes community members) played in supporting their pregnancies. Thus, patients' interpersonal relationships outside of the traditional medical system should not be disregarded in program rollout.

We strongly recommend the development of an evidence-based online or mobile-based app for prenatal education. It is important that we are providing options for mothers across the State. The addition of an online/mobile option would be a valuable resource to any mother, particularly those experiencing transportation or scheduling conflicts for the classes within her area. Research also suggest that mobile apps can be a powerful engagement tool in patient activation in the clinical setting.[35] Providers can also find ways to interface with the app by having patient's record information about the pregnancy within the app. This can be a great way to the track pregnancy and provide deeper discussion during prenatal visits. A study conducted by researchers at the Einstein Medical Center documented a rapid decline of the digital divide with a significant increase in mobile device ownership of low-income families.[36] If most low-income women have access to a smartphone with a data plan, incorporating a mobile-friendly website or app with relevant content can be easily accessible for pregnant women within the State.

Increase Broadband Access

Many families throughout the State, specifically in rural counties, do not have access to the broadband internet needed to support online applications necessary for the prenatal education platforms mentioned within this study. Patients from both focus groups mentioned the lack of internet access as a barrier to access online prenatal education. In addition, due to transportation issues within rural areas, providers surveyed expressed favorable feedback regarding online and mobile-based apps. Broadband access will increase families' willingness to access online options, as well as provide a meaningful solution to transportation issues within these regions.

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Appendix A. Prenatal Education Survey

9 In your opinion, which of the following components should be included in an online prenatal education program? Please check all that apply.

- ❑ Breastfeeding
- ❑ Family Planning
- ❑ Safe Sleep
- ❑ Birth Options (i.e. vaginal delivery, cesarean section, assisted delivery)
- ❑ Car Seat Safety
- ❑ Stages of Pregnancy
- ❑ Maternal Mental Health
- ❑ Postpartum Care
- ❑ Oral Care during Pregnancy
- ❑ Prenatal Care
- ❑ HIV/STI Prevention
- ❑ Birth Spacing
- ❑ Health Insurance Literacy
- ❑ Newborn Care
- ❑ Immunizations
- ❑ Planning for Healthy Babies Program
- ❑ Not applicable/no opinion
- ❑ Other (please specify):

10 Please provide any other feedback on the creation of an online prenatal education resource.

This project is funded by: Georgia Health Foundation

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Coalition of Georgia

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Coalition of Georgia

Thank you for participating in the Healthy Mothers, Healthy Babies prenatal education survey!

Thank you for your participation! We seek to gather information from Georgia practitioners, like you, about engagement with prenatal education programs, referral practices, and interest in online and mobile friendly prenatal education platforms.

Completion of this survey should take about 5-10 minutes. All questions are optional, however we would appreciate your attempt to answer the questions to the best of your ability. If you have any questions about the survey or project, please feel free to contact us at: **678-302-1130** or thecoalition@hmhbga.org

Please return completed surveys by mail to:

Healthy Mothers, Healthy Babies Coalition of Georgia
2300 Henderson Mill Road
Suite 410
Atlanta, GA 30345

Or, complete the survey online at:
www.surveymonkey.com
/r/hmhbga

PRENATAL EDUCATION RESEARCH PROVIDER SURVEY

1 Please provide your name and email address.

2 Please provide the name of your organization/ practice/agency.

3 Does your facility offer prenatal education classes?

a. Yes: on-site b. Yes: off-site
c. Both on- and off-site d. No

4 If so, may we follow-up with you for more details on your curriculum?

a. Yes (please provide name and number of who to contact)

b. No

5 If not, where do you refer patients for prenatal education? Please check all that apply.

- ❑ We do not refer patients to prenatal education
- ❑ We refer to the local health department
- ❑ We refer to a local hospital (please specify):
- ❑ We refer to an online program (please specify):
- ❑ Mobile app (please specify):
- ❑ Other (please specify name of facility/facilities):

6 Why do you refer patients to the location(s) specified in question 5? Please check all that apply.

- ❑ We do not refer patients.
- ❑ Their facility is close to ours.
- ❑ Their facility is close to where our patients live.
- ❑ Convenience
- ❑ Their affiliation with another organization
- ❑ Reputation/Standard of Care is important to us
- ❑ Content of the program
- ❑ Other reason (please specify):

7 How likely would you be to refer patients to an evidence-based **online prenatal education resource** if Georgia had this to offer?

Very unlikely	Unlikely	Likely	Very likely
1	2	3	4

- ❑ I am already doing this (please specify):

Comments:

8 How likely would you be to refer patients to an evidence-based **prenatal education mobile app** if Georgia had this to offer?

Very unlikely	Unlikely	Likely	Very likely
1	2	3	4

- ❑ I am already doing this (please specify):

Comments:

(continued on back page)

Appendix B. Recruitment Flyer for Prenatal Education Survey

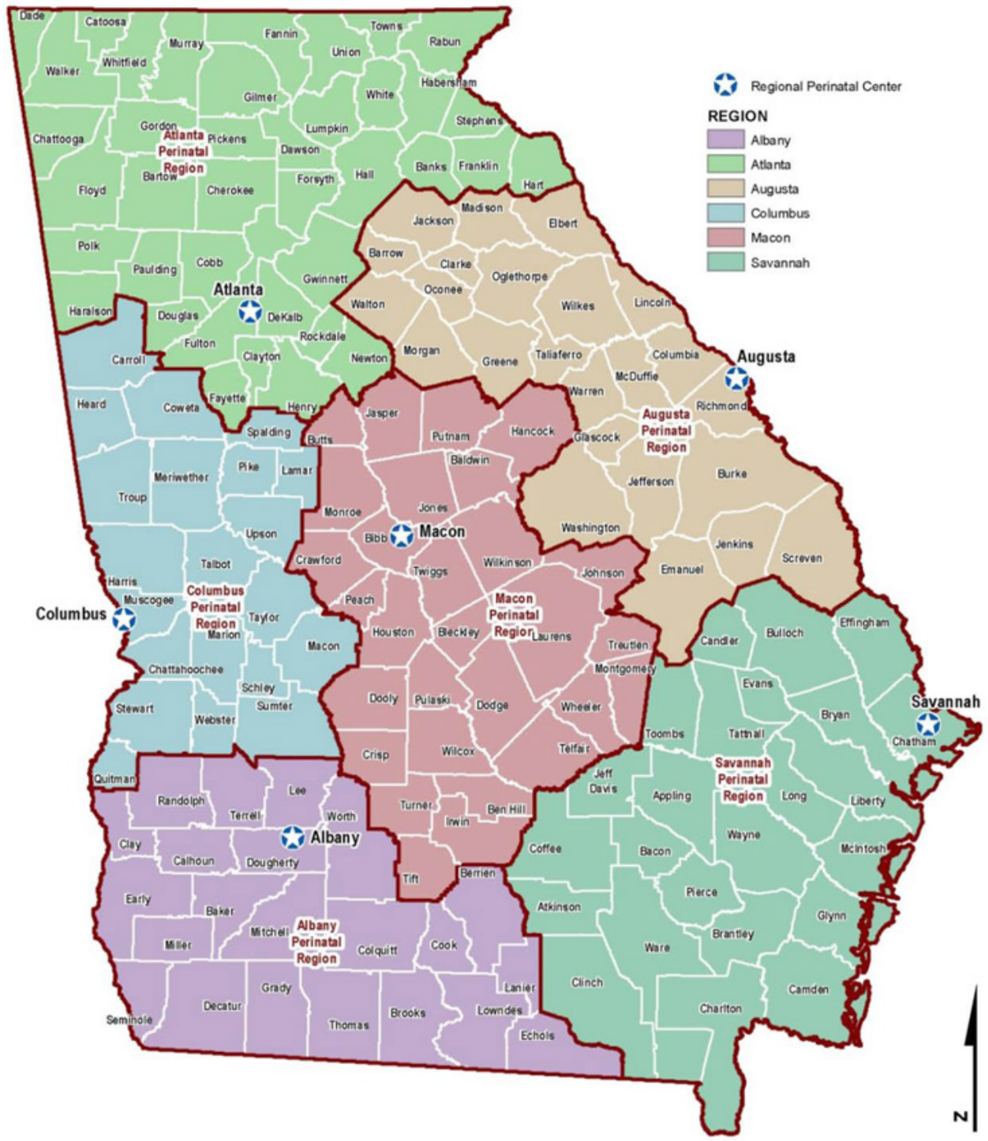
Appendix C. Prenatal Education Competencies

Competency	Description
How to Find Prenatal Care	Education on how to find prenatal care may include resources to help mothers identify prenatal care providers near them. In addition, this topic may inform mothers on how to ensure that the doctor they choose will have the ability to fulfill all of their birthing preferences.
Folic Acid and Prenatal Vitamins	Information about folic acid and prenatal vitamins should include regular dosages, as well as scientifically proven benefits of taking folic acid and prenatal vitamins.
What to Expect During Prenatal Visits	Mothers should be informed about what a typical prenatal visit will include and how long they should plan to be at the doctor's office. In addition, information may be included about the centering method of healthcare.
Dental Care During Pregnancy	Mothers should be educated on the scientifically proven ways in which oral hygiene can impact birth outcomes, including preterm birth and low birthweight.
Immunizations	Education about immunizations during and before pregnancy are especially important for the influenza vaccine and the tetanus, diphtheria, and pertussis vaccine (Tdap). Any information included should explain why it is important to get the Tdap vaccine during pregnancy to protect babies from pertussis in infancy.
Fetal Development	Education about fetal development should include information about growth of the fetus through each trimester.
Types of Providers	Education about providers should include comprehensive explanations of the roles of physicians (obstetric gynecologists), and midwives.
Birthing Options	Education should include information about both vaginal birth and cesarean sections, as well as pain management, and planning for birthing options. In addition, information may be provided about vaginal birth after cesarean sections (VBACS). Information on possible birthing locations and doula options should also be provided.

STI/HIV Transmission	Education about STI/HIV transmission from mother to baby should explain, in depth, the measures that mothers can take to protect their babies from transmission.
Postpartum Care for Mom	Education about post-partum care should include information about timing of postpartum visits, what to expect at postpartum visits, and some possible items to discuss with providers, including birth control options and breastfeeding progress.
Maternal Mental Health	Education about maternal mental health should reassure mothers that the emotions they are feeling are not uncommon. Information about coping mechanisms, signs of postpartum depression, and resources for help should be included.
Breastfeeding	Education about breastfeeding may be comprehensive, including techniques, or may simply include information about scientifically proven benefits of breastfeeding. In addition, information about certified lactation counselors should be included.
Newborn Screening and Checkups	Education about newborn screening should include information about the tests that are run on babies before they leave the hospital. Education about checkups should include information about what mothers might be able to expect at a typical visit with the pediatrician, and when checkups should be scheduled for.
Infant Care	Infant care education may be comprehensive, covering many topics, but should include information about circumstances under which parents should call the pediatrician or seek immediate medical attention for their baby.
Safe Sleep	Education about safe sleep should include clear communication that babies should be put to sleep alone, on their backs, and in a crib. It should be made clear that this includes no toys, blankets, or crib bumpers.
Car Seat Safety	Education about car seat safety should include the ages at which children should be placed in a rear-facing car seat, a forward-facing car seat, a booster seat, and a regular seat belt.

Insurance Options	Education about insurance options should include information about the four Medicaid companies available in Georgia: (1) Amerigroup Real Solutions in Healthcare, (2) Wellcare Health Plans, (3) Peach State Health Plan, and (4) Caresource. Information provided should include explanations of various coverage plans that are available.
Women, Infants, and Children (WIC) Supplemental Nutrition Program	Education about WIC should include information about who qualifies for the program as well as the services that are available through the program.
Planning for Healthy Baby Program	Education about Planning for Healthy Babies should be provided and should include information about eligibility, the family planning program, the inter-pregnancy care program, and the resource mother outreach program. Information should include all eligibility and services for each program.
Birth Spacing	Education about birth spacing should include information on the importance of sufficient birth spacing, what qualifies as sufficient birth spacing, and the risks of insufficient birth spacing.
Antenatal Birth Control	Education about birth control should be included to give mothers a tool in ensuring that they obtain sufficient birth spacing.

Appendix D. Georgia Perinatal Region



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Principal Investigator

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