

2009

Distance Analysis to OB/GYN Providers
Comparison by type of Medicaid plan -
Final Study Results
January 6, 2009

This work was developed under contract with the
SC Department of Health and Human Services

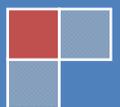
Ana Lopez De Fede

John Stewart

Kathy Mayfield-Smith

Qiduan Liu

Institute for Families in Society at the University of South Carolina



BACKGROUND

Geographic proximity to health care providers is an important component of access to health care services. The Balanced Budget Act of 1997 (BBA) gave states new authority to require certain Medicaid beneficiaries to enroll in managed care plans and also required the establishment of consumer protections for Medicaid managed care enrollees in areas such as access to and quality of care (Pub. Law. No. 105-33, § 4701, 111 Stat. 251, 489; § 4705(a), 111 Stat. at 498). BBA required safeguards to ensure enrollees have access to care could include requiring plans to maintain provider networks that provide enrollees with sufficient geographic access to providers. State Medicaid programs set geographic access standards within their managed care programs. These State standards ensure that enrollees in managed care plans are able to physically access services as required by policy or indicated by the MCO and approved by SC DHHS. This report explores geographical access for Medicaid women by examining "optimal" access to care distance for Medicaid recipients needing OB-GYN providers.

Study Population: Medicaid women with live births in fiscal year 2008 enrolled in managed care. For comparison with the managed care population, a fee-for-service stratified sample of twenty percent of women with live births was selected for this study.

Study Approach. The ESRI ArcView extension, Shortest Network Paths, was used to calculate the shortest distance on the South Carolina road network (including streets, state and U.S. highways, and Interstate highways) between study population residences and the nearest OB/GYN provider. These computationally intensive spatial analyses represent an alternative calculation method to measuring trip-to-provider length using a straight line or "as-the-crow-flies" method. The analyses create point-to-point travel distances representing Medicaid recipient's likely path of travel to OB-GYN providers, instead of generalized straight line or zone-based distance estimates. The analyses also may be used to estimate travel-to-provider time. Using this approach, the study will be done in two phases – estimates of travel distance to all Medicaid OB/GYN providers and estimates of travel distance to MCO network identified OB/GYN providers. This report presents the results of phases 1 and 2. *Phase One Study Approach.* Medicaid OB-GYN Providers and women with a delivery claim for SFY08 in Medicaid

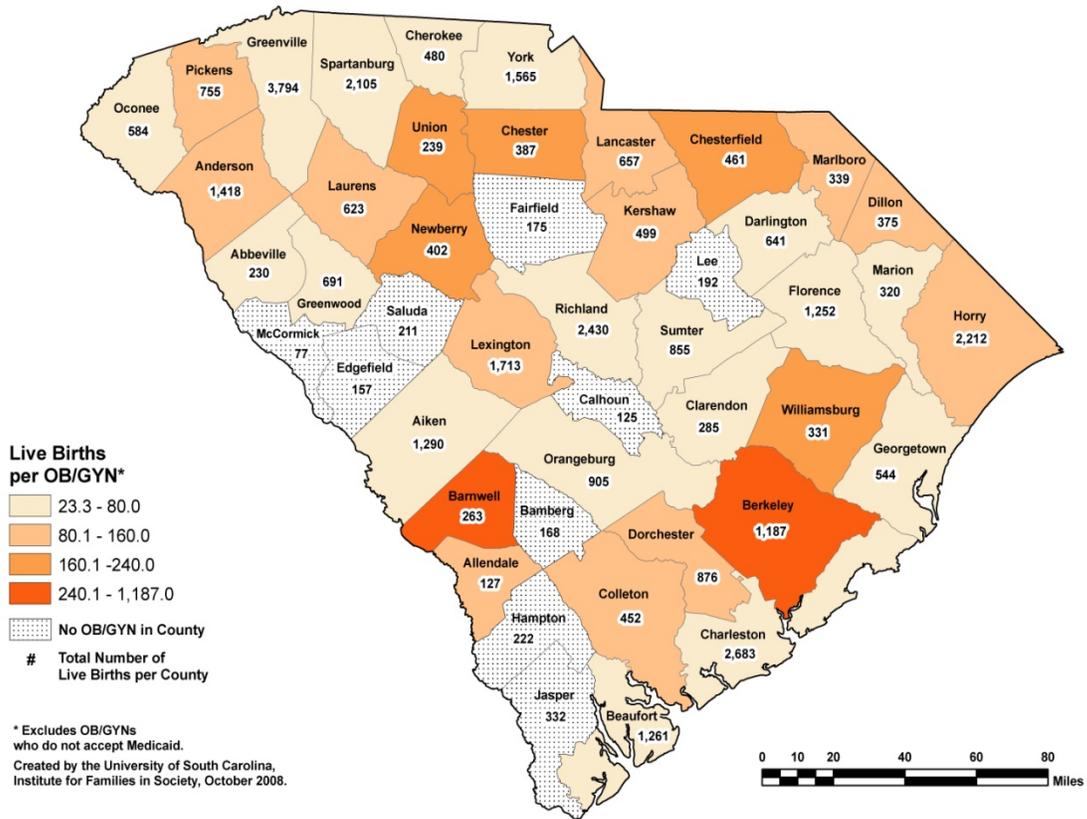
Managed Care were geocoded (spatially located) using MapInfo MapMarker Plus. This geocoding software assigns geographic coordinates (latitude-longitude) to street addresses, as well as other points and features. Based on these geographic coordinates, the features were mapped and entered into a Geographic Information System (GIS) to run the network path analysis between recipients and providers. Phase 2 Study Approach. Medicaid OB-GYN Providers were geocoded differentiating between those approved by health care plans from those enrolled in fee-for-service and women with a delivery claim for SFY08 in Medicaid Managed Care. The same approach was repeated from Phase 1 using MapInfo MapMarker Plus to spatially locate the providers and Medicaid recipients. Based on these geographic coordinates, the features were mapped and entered into a Geographic Information System (GIS) to run the network path analysis between recipients and providers with and outside of managed care health plans.

Geographical Location of OB/GYN Providers and Study Population

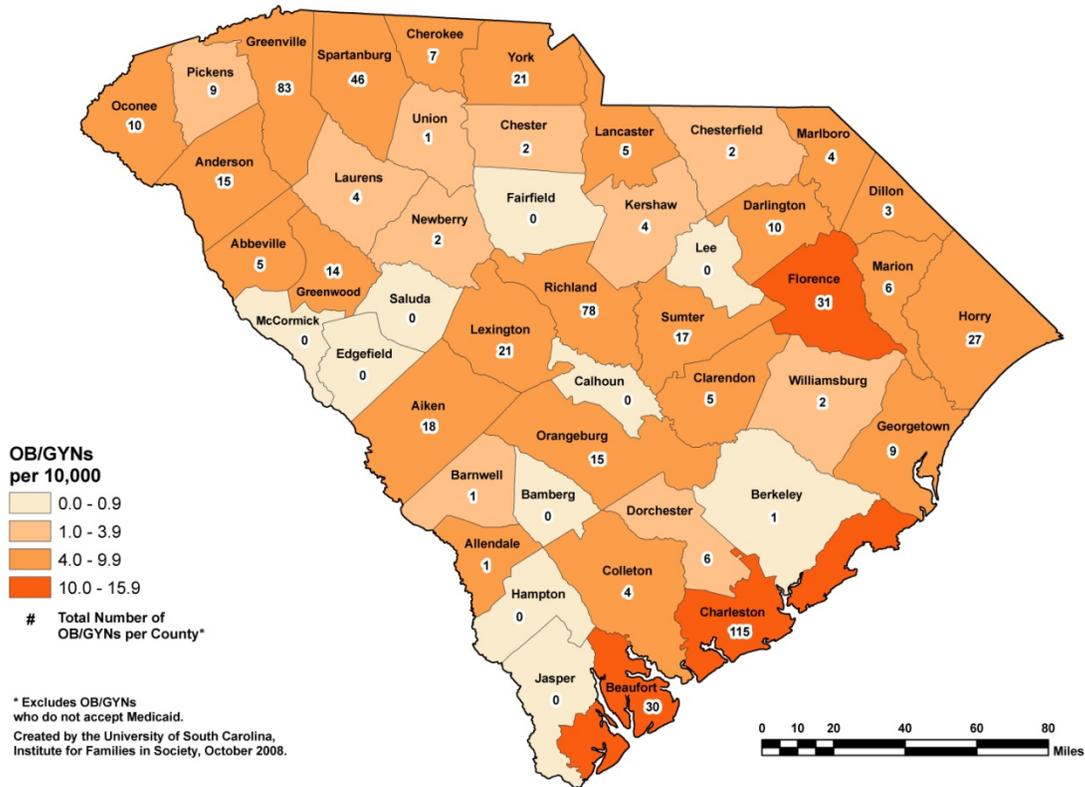
Map 1 illustrates the number of Medicaid live births by approved Medicaid OB/GYN providers per county. It shows a potential disparity in 9 of 46 counties between the number of live births and available OB/GYN Medicaid providers. In these counties, Medicaid recipients may need to rely on providers in adjacent counties or general practitioners for prenatal and postpartum care.

Map 2 denotes the number of approved OB/GYN Medicaid providers per 10,000 women of childbearing age in South Carolina. It illustrates potential provider gaps in 10 of 46 counties in South Carolina. These counties have limited access to Medicaid approved primary OB/GYN practices. This may result in limited provider choice and greater travel time for Medicaid recipients in rural counties.

Number of Medicaid Live Births (FY 2008) per OB/GYN* by County



Number of OB/GYNs* per 10,000 Females Ages 15 to 44 by County



Network Distance Analysis

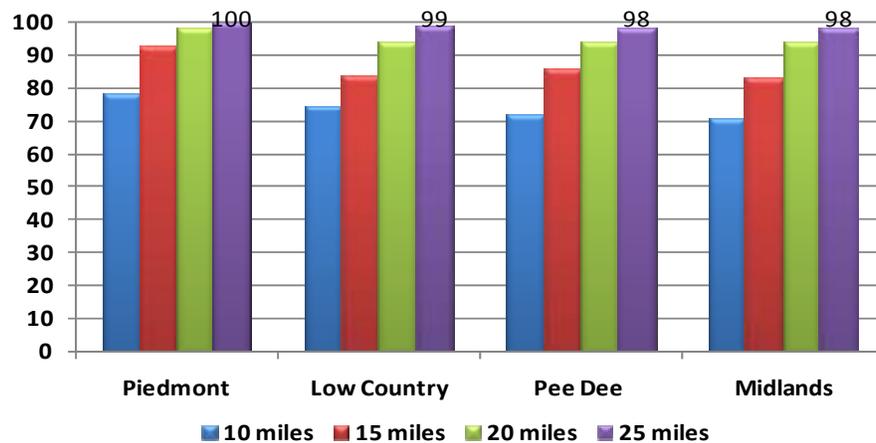
Federal regulations require states, through their contracts, to ensure that each MCO has a contracted provider network that is sufficient to provide access to all services covered under the state's plan. When developing its network, the MCO or PIHP must consider the following:

1. anticipated Medicaid enrollment;
2. expected service utilization based on the Medicaid population's characteristics and health care needs;
3. the number and types of providers needed to provide contracted Medicaid services;
4. the number of network providers not accepting new Medicaid patients; and
5. the geographic location of providers and Medicaid enrollees, considering distance, travel time, transportation, and disability access (42 CFR § 438. 206).

South Carolina has set this geographic access as within 25 miles of primary care and obstetric-gynecologic providers. In conducting a network analysis, the next section of the report explores “optimal” access to care distance for Medicaid recipients needing OB-GYN providers through a network analysis of study population by health regions. See Appendix A – for study definitions.

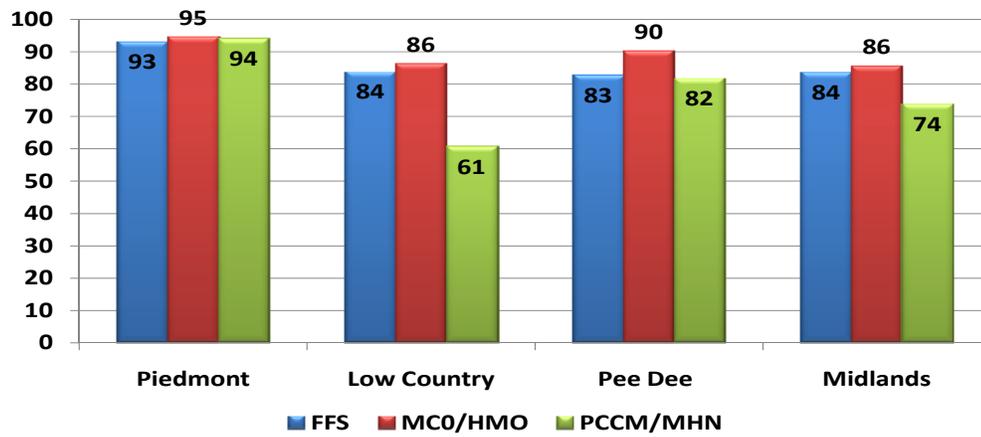
Figure 1 provides a summary of all Medicaid recipients within 25 or less miles of OB/GYN providers. ***It highlights that at minimum ninety-eight percent of Medicaid recipients with live births in fiscal year 2008 have access to an OB/GYN provider within 25 miles of their home.*** The data does not make distinctions by type of plan, i.e., fee-for-service, managed care organization, or medical home network.

Figure1: Percent of all Medicaid Recipients within 25 miles of an OB/GYN Provider



Consistently geographic access to OB/GYN providers by Medicaid recipients enrolled with a managed care organization was equal to or better than for those enrolled in fee-for-service. Figure 2 depicts a breakdown of recipients by type of plan and health region within 15 miles of an OB/GYN provider from their home. Appendix B provides a more detailed breakdown by race, rural versus urban ZCTA, and neighborhood characteristics.

Figure 2: Percent of all Medicaid Recipients within 15 miles of OB/GYN Providers



In Phase 2, we examined the relationship between Medicaid recipients and OB/GYN providers designated by the managed care health plan within their approved network. Table 2 illustrates Medicaid recipients within 25 or less miles of OB/GYN providers as a function of the network of managed care health plans. *It highlights that between ninety-one and one-hundred percent of Medicaid recipients enrolled with a managed care health plan with live births in fiscal year 2008 have access to a network OB/GYN provider within 25 miles of their home.*

Table 2: Distance to the Nearest HMO OB/GYN for HMO Medicaid Recipients with Live Births in FY2008

	Mean (Miles)	Range (Miles)	% Within 10 Miles of Nearest OB/GYN	% Within 15 Miles of Nearest OB/GYN	% Within 20 Miles of Nearest OB/GYN	% Within 25 Miles of Nearest OB/GYN
Low Country	7.67	0.08 to 35.76	76.70%	82.20%	87.70%	90.61%
Midlands	7.31	0.04 to 30.77	73.28%	85.67%	92.99%	97.61%
Pee Dee	6.56	0.13 to 23.98	75.35%	89.52%	94.62%	100.00%
Piedmont	5.06	0.33 to 22.19	87.42%	95.81%	99.34%	100.00%

Summary of Findings

Using the ESRI ArcView Desktop extension, Shortest Network Paths, as an alternative calculation method to measuring trip length using a straight line or "as-the-crow-flies" method, we found that over ninety percent of all Medicaid recipients were within 25 miles of an OB/GYN provider from their home. This finding holds true regardless of the choice of the Medicaid recipient to be enrolled in a managed care plan or to remain in fee-for-service. As such, the current requirements for managed care health plans to establish provider networks taking into consideration a 25mile radius is appropriate given the current distribution of providers and Medicaid recipients. In summary, the network path analysis findings indicate that there is no difference in geographical access for recipients between network enrolled Medicaid OB/GYN providers and those in fee-for-service using the 25 miles radius as the guide post for the establishment of network providers relative to enrolled Medicaid recipients.

Appendix A

Study Terms and Definitions

I. South Carolina Health Regions

Low Country includes the following counties:

Beaufort
Berkeley
Charleston
Colleton
Dorchester
Georgetown
Hampton
Jasper

Midlands includes the following counties:

Aiken
Allendale
Bamberg
Barnwell
Calhoun
Clarendon
Fairfield
Kershaw
Lancaster
Lee
Lexington
Newberry
Orangeburg
Richland
Sumter
York

Pee Dee includes the following counties:

Chesterfield
Darlington
Dillon
Florence
Horry
Marion
Marlboro
Williamsburg

Piedmont includes the following counties:

Abbeville
Anderson
Cherokee
Chester
Edgefield
Greenville
Greenwood
Laurens
McCormick
Oconee
Pickens
Saluda
Spartanburg
Union

II. Rural/Urban Definitions (RUCA 2006 ZIP Version 2.0)

RUCAs, Rural-Urban Commuting Area Codes, are a new Census tract-based classification scheme that utilizes the standard Bureau of Census Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation's Census tracts regarding their rural and urban status and relationships.

Urban: RUCA Codes 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, 10.1;

Rural: RUCA Codes 4.0, 4.2, 5.0, 5.2, 6.0, 6.1, 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2, 10.0, 10.2, 10.3, 10.4, 10.5, 10.6;

Isolated Rural: RUCA Codes 10.0, 10.2, 10.3, 10.4, 10.5, 10.6.

III. Contextual Factors Neighborhood Disadvantage

ZIP Code Tabulation Areas (ZCTAs™) are a new statistical entity developed by the U.S. Census Bureau for tabulating summary statistics from Census 2000. This new entity was developed to overcome the difficulties in precisely defining the land area covered by each ZIP Code.

High Poverty: ZCTAs in which 20% or more of the resident population live below the federal poverty level.

High Deprivation: ZCTAs in the top quartile of the SC ZCTA distribution of Townsend Social Deprivation Index scores. The Townsend Index is based on local rates of housing rental, housing crowding, unemployment, and car ownership. Higher Index values represent higher levels of social deprivation.

High Female Headed Households: ZCTAs in which more than 32% of all households with children under 18 are headed by single females (top quartile of the SC ZCTA % female-headed household distribution).

APPENDIX B

Detailed Distance Analysis by Region and Selected Characteristics

Piedmont Health Region

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008:
SC Piedmont Health Region

	N	% Within 10 Miles of Nearest OB/GYN	% Within 15 Miles of Nearest OB/GYN	% Within 20 Miles of Nearest OB/GYN	% Within 25 Miles of Nearest OB/GYN
Total	1,277	78.70%	93.27%	97.96%	99.84%
FFS*	721	73.79%	92.23%	97.92%	99.72%
HMO	453	84.99%	94.70%	98.23%	100.00%
PCCM	103	85.44%	94.17%	97.09%	100.00%

**Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC
Piedmont Health Region**

		N	Mean Distance (Miles)	Range (Miles)
Total		1,277	6.18	0.05 to 26.20
	FFS*	721	6.77	0.12 to 26.20
	HMO	453	5.29	0.05 to 23.67
	PCCM	103	5.98	0.05 to 23.56
White		715	7.22	0.05 to 26.20
	FFS*	451	7.62	0.12 to 26.20
	HMO	189	6.96	0.05 to 20.89
	PCCM	75	5.45	0.05 to 19.40
Afr. Am.		522	4.84	0.16 to 26.09
	FFS*	255	5.34	0.16 to 26.09
	HMO	241	4.03	0.19 to 23.67
	PCCM	26	7.42	0.27 to 23.56

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Piedmont Health Region

		N	Mean Distance (Miles)	Range (Miles)
Urban		974	5.53	0.12 to 20.89
	FFS*	492	6.10	0.12 to 18.97
	HMO	412	4.97	0.19 to 20.89
	PCCM	70	4.81	0.27 to 17.36
Rural		303	8.27	0.05 to 26.20
	FFS*	229	8.19	0.16 to 26.20
	HMO	41	8.51	0.05 to 23.67
	PCCM	33	8.46	0.05 to 23.56
Isol. Rural		20	18.21	13.21 to 26.20
	FFS*	17	18.24	13.21 to 26.20
	HMO	1	21.44	21.44 to 21.44
	PCCM	2	16.32	14.09 to 18.55

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Piedmont Health Region

		N	Mean Distance (Miles)	Range (Miles)
Rural		303	8.27	0.05 to 26.20
	Af. Am.	133	7.91	0.16 to 26.09
	White	164	8.59	0.05 to 26.20

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Piedmont Health Region

	N	Mean Distance (Miles)	Range (Miles)
High Poverty	79	3.84	0.75 to 12.05
FFS*	28	4.81	0.75 to 11.85
HMO	47	2.88	0.78 to 12.05
PCCM	4	8.37	2.49 to 11.53
High Deprivation	300	3.47	0.13 to 24.60
FFS*	135	4.00	0.13 to 24.60
HMO	150	2.80	0.28 to 12.35
PCCM	15	5.4	0.90 to 18.55
High Fem. HH	358	3.77	0.05 to 21.96
FFS*	174	4.60	0.12 to 21.96
HMO	158	2.92	0.05 to 21.44
PCCM	26	3.46	0.05 to 14.09

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Low Country Health Region

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Low Country Health Region

	N	% Within 10 Miles of Nearest OB/GYN	% Within 15 Miles of Nearest OB/GYN	% Within 20 Miles of Nearest OB/GYN	% Within 25 Miles of Nearest OB/GYN
Total	834	74.34%	83.69%	94.36%	98.56%
FFS*	459	72.11%	83.88%	95.42%	98.47%
HMO	309	82.20%	86.41%	94.17%	99.03%
PCCM	66	53.03%	69.70%	87.88%	96.97%

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Low Country Health Region

		N	Mean Distance (Miles)	Range (Miles)
Total		834	6.85	0.00 to 28.19
	FFS*	459	7.20	0.24 to 28.19
	HMO	309	5.71	0.00 to 27.75
	PCCM	66	9.82	0.02 to 26.26
White		281	7.18	0.02 to 27.92
	FFS*	187	7.14	0.24 to 27.92
	HMO	76	6.40	0.02 to 27.75
	PCCM	18	10.95	0.97 to 26.26
Afr. Am.		533	6.70	0.00 to 28.19
	FFS*	262	7.32	0.32 to 28.19
	HMO	224	5.39	0.00 to 27.75
	PCCM	47	9.58	0.02 to 22.48

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Low Country Health Region

		N	Mean Distance (Miles)	Range (Miles)
Urban		556	5.28	0.02 to 28.19
	FFS*	311	5.78	0.26 to 28.19
	HMO	242	4.64	0.02 to 23.38
	PCCM	3	5.01	2.62 to 9.17
Rural		278	9.99	0.00 to 27.75
	FFS*	148	10.17	0.24 to 27.75
	HMO	67	9.55	0.00 to 27.75
	PCCM	63	10.04	0.02 to 26.26
Isol. Rural		37	20.47	13.73 to 26.26
	FFS*	21	19.26	13.73 to 26.03
	HMO	12	21.21	14.61 to 25.88
	PCCM	4	24.61	22.48 to 26.26

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Low Country Health Region

		N	Mean Distance (Miles)	Range (Miles)
Rural		278	9.99	0.00 to 27.75
	Af. Am.	189	9.90	0.00 to 27.75
	White	84	10.04	0.24 to 27.75

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Low Country Health Region

	N	Mean Distance (Miles)	Range (Miles)
High Poverty	265	8.93	0.24 to 27.92
FFS*	121	10.39	0.41 to 27.92
HMO	119	5.85	0.24 to 25.88
PCCM	25	16.46	2.51 to 26.26
High Deprivation	252	4.28	0.00 to 27.75
FFS*	102	4.28	0.41 to 27.75
HMO	130	3.22	0.00 to 27.75
PCCM	20	11.15	0.02 to 20.88
High Fem. HH	266	4.72	0.16 to 28.19
FFS*	113	5.34	0.52 to 28.19
HMO	135	2.96	0.16 to 23.38
PCCM	18	14.05	2.51 to 22.21

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Pee Dee Health Region

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Pee Dee Health Region

	N	% Within 10 Miles of Nearest OB/GYN	% Within 15 Miles of Nearest OB/GYN	% Within 20 Miles of Nearest OB/GYN	% Within 25 Miles of Nearest OB/GYN
Total	828	71.62%	85.99%	94.32%	97.83%
FFS*	398	67.59%	82.91%	92.96%	96.73%
HMO	353	78.75%	90.37%	96.32%	98.87%
PCCM	77	59.74%	81.82%	92.21%	98.70%

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Pee Dee Health Region

		N	Mean Distance (Miles)	Range (Miles)
Total		828	7.28	0.14 to 27.86
	FFS*	398	7.86	0.14 to 27.86
	HMO	353	6.34	0.23 to 26.83
	PCCM	77	8.62	0.21 to 25.22
White		289	8.32	0.23 to 27.86
	FFS*	183	8.53	0.48 to 27.86
	HMO	80	7.48	0.23 to 26.83
	PCCM	26	9.44	0.24 to 24.34
Afr. Am.		518	6.66	0.14 to 26.67
	FFS*	206	7.28	0.14 to 25.46
	HMO	264	5.95	0.40 to 26.67
	PCCM	48	7.81	0.21 to 25.22

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Pee Dee Health Region

		N	Mean Distance (Miles)	Range (Miles)
Urban		412	6.88	0.14 to 24.34
	FFS*	230	6.66	0.14 to 21.26
	HMO	160	6.62	0.23 to 23.23
	PCCM	22	11.09	0.24 to 24.34
Rural		416	7.68	0.21 to 27.86
	FFS*	168	9.51	0.21 to 27.86
	HMO	193	6.10	0.40 to 26.83
	PCCM	55	7.64	0.21 to 25.22
Isol. Rural		19	22.92	8.79 to 27.86
	FFS*	7	23.12	20.58 to 27.86
	HMO	9	23.04	8.79 to 26.83
	PCCM	3	22.12	19.96 to 25.22

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Pee Dee Health Region

	N	Mean Distance (Miles)	Range (Miles)
Rural	416	7.68	0.21 to 27.86
Af. Am.	288	6.87	0.21 to 26.67
White	111	9.56	0.44 to 27.86

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Pee Dee Health Region

	N	Mean Distance (Miles)	Range (Miles)
High Poverty	437	6.22	0.17 to 27.86
FFS*	168	6.96	0.17 to 27.86
HMO	224	5.45	0.40 to 23.23
PCCM	45	7.35	0.51 to 24.34
High Deprivation	400	5.95	0.14 to 25.46
FFS*	159	7.17	0.14 to 25.46
HMO	202	4.98	0.40 to 23.23
PCCM	39	6.02	0.51 to 24.34
High Fem. HH	360	4.96	0.17 to 24.34
FFS*	124	4.98	0.17 to 19.38
HMO	202	4.96	0.40 to 23.23
PCCM	34	4.82	0.51 to 24.34

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Midlands Health Region

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Midlands Health Region

	N	% Within 10 Miles of Nearest OB/GYN	% Within 15 Miles of Nearest OB/GYN	% Within 20 Miles of Nearest OB/GYN	% Within 25 Miles of Nearest OB/GYN
Total	1,551	70.41%	83.24%	94.00%	98.00%
FFS*	674	68.55%	83.68%	94.66%	99.11%
HMO	670	75.37%	85.67%	94.78%	98.66%
PCCM	207	60.39%	73.91%	89.37%	92.27%

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Midlands Health Region

		N	Mean Distance (Miles)	Range (Miles)
Total		1,551	7.65	0.04 to 31.59
	FFS*	674	7.84	0.14 to 31.10
	HMO	670	6.93	0.04 to 31.59
	PCCM	207	9.37	0.04 to 29.54
White		527	8.87	0.14 to 30.04
	FFS*	305	8.52	0.14 to 24.68
	HMO	169	8.69	0.30 to 30.04
	PCCM	53	11.44	0.27 to 29.16
Afr. Am.		994	6.98	0.04 to 31.59
	FFS*	358	7.26	0.23 to 31.10
	HMO	485	6.25	0.04 to 31.59
	PCCM	151	8.66	0.04 to 29.54

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Midlands Health Region

		N	Mean Distance (Miles)	Range (Miles)
Urban		975	6.75	0.23 to 29.13
	FFS*	468	7.29	0.23 to 29.13
	HMO	452	5.91	0.27 to 27.89
	PCCM	55	9.10	0.48 to 27.76
Rural		576	9.17	0.04 to 31.59
	FFS*	206	9.09	0.14 to 31.10
	HMO	218	9.04	0.04 to 31.59
	PCCM	152	9.47	0.04 to 29.54
Isol. Rural		110	14.93	0.14 to 31.59
	FFS*	43	12.77	0.14 to 31.10
	HMO	41	14.48	0.49 to 31.59
	PCCM	26	19.23	0.75 to 29.54

* Based on a 20% sample of all FFS recipients with live births in FY2008.

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Midlands Health Region

		N	Mean Distance (Miles)	Range (Miles)
Rural		576	9.17	0.04 to 31.59
	Af. Am.	395	8.66	0.04 to 31.59
	White	173	10.21	0.14 to 30.04

Distance to the Nearest OB/GYN for Medicaid Recipients with Live Births in FY2008: SC Midlands Health Region

	N	Mean Distance (Miles)	Range (Miles)
High Poverty	516	8.37	0.04 to 31.59
FFS*	161	9.05	0.14 to 31.10
HMO	253	7.32	0.04 to 31.59
PCCM	102	9.88	0.04 to 29.54
High Deprivation	706	6.13	0.04 to 31.59
FFS*	248	6.30	0.23 to 31.10
HMO	342	5.16	0.04 to 31.59
PCCM	116	8.62	0.04 to 29.54
High Fem. HH	710	6.85	0.04 to 31.59
FFS*	253	7.28	0.14 to 31.10
HMO	354	5.86	0.04 to 31.59
PCCM	103	9.18	0.04 to 29.54

* Based on a 20% sample of all FFS recipients with live births in FY2008.