

Monitoring Access to Care for Medicaid Recipients Enrolled in Fee-for-Service (FFS)

Fiscal Years 2013, 2014, and 2015



Prepared by the Division of Medicaid Policy Research at the USC Institute for Families in Society under contract to the SC Department of Health and Human Services

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Introduction

The South Carolina Healthy Connections Medicaid program provides healthcare coverage for low-income individuals, including children, pregnant women, individuals with disabilities, and other adults. Although most Medicaid beneficiaries in the state are enrolled in managed care, approximately one-fifth of participants are full-benefit fee-for-service (FFS) enrollees. Access to healthcare is essential to the health and well-being of individuals and populations. To help ensure healthcare accessibility for state Medicaid enrollees in FFS, the University of South Carolina's Institute for Families in Society, Division of Medicaid Policy Research (MPR) under contract with the South Carolina Department of Health and Human Services (SCDHHS) routinely monitors a range of access-to-care indicators across four separate health service categories:

- Primary care, physician specialists, and dental care
- Behavioral health services
- Obstetric services
- Home health services

Medicaid FFS access-to-care indicators monitored by MPR include healthcare provider counts, provider-to-enrollee ratios, and Healthcare Effectiveness Data and Information Set (HEDIS) utilization measures.¹ This document describes South Carolina Medicaid FFS enrollment patterns and presents FFS enrollee access-to-care trends for state fiscal years (FYs) 2013, 2014, and 2015 (state FYs run from July 1 to June 30). Trends are evaluated for South Carolina as a whole and for urban, suburban, and rural portions of the state, as data permits. Enrollee data in this report represent full-benefit Medicaid FFS enrollees defined as the population not in a managed care plan or in a limited benefits payment category. This report is broken down into the following sections:

- I. Background
- II. Access to Healthcare for South Carolina Medicaid FFS Enrollees
- III. Rates

¹ The Healthcare Effectiveness Data and Information Set (HEDIS) is a tool used by more than 90% of America's health plans to measure performance on important dimensions of care and service. Altogether, HEDIS consists of 81 measures across 5 domains of care. Because so many plans collect HEDIS data and because the measures are so specifically defined, HEDIS makes it possible to compare the performance of health plans on an "apples-to-apples" basis (<http://www.ncqa.org/hedis-quality-measurement/performance-measurement>). For purposes of this report, selected HEDIS measures will be reported as a component of access to care for each section of the report. *The trend data for HEDIS measures should be interpreted using the percentiles to note change and not solely the numerical unit of the measurement.*

A description of measurement methods, supplementary data tables, and metadata appear in the appendices. A key factor in the interpretation of this report is the movement to managed care organizations as the primary source for service delivery for SC Medicaid enrollees. As such, notable changes across time are likely to be influenced by the FFS population with a high percentage of waiver populations with significant healthcare needs resulting in lower or higher percentiles across selected HEDIS utilization measures.

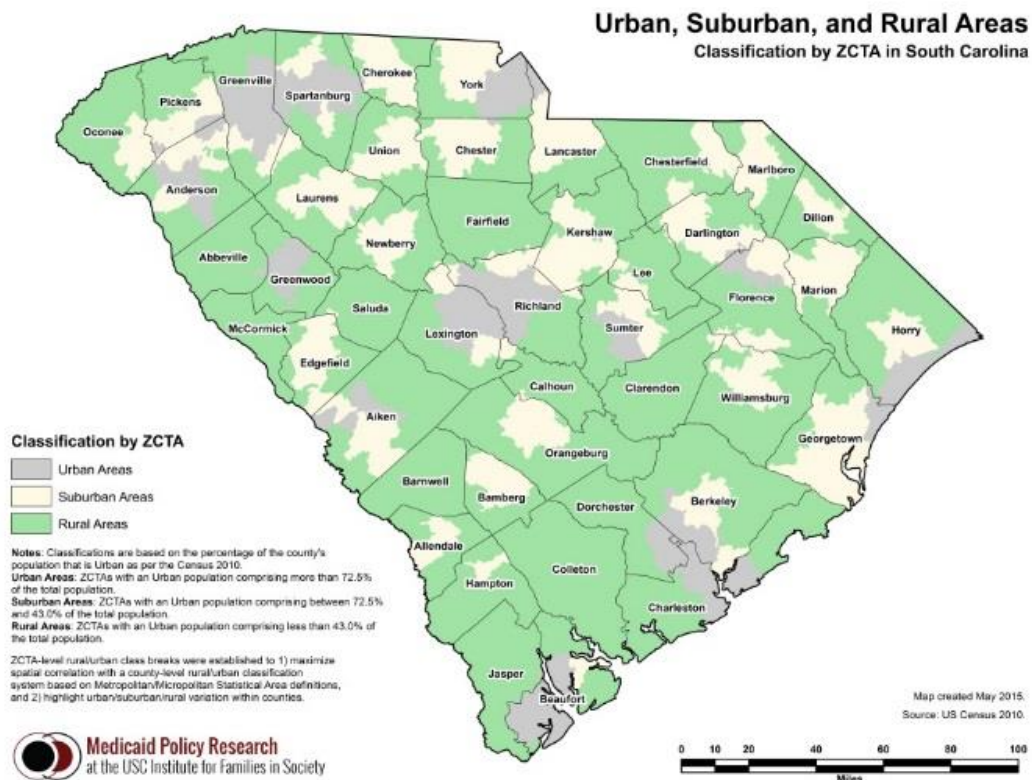
I. Background

A. Defining Urban, Suburban, and Rural Areas

Geographic access to care can be quite different in large urban versus remote rural regions. The explicit definition of the state's urban/rural continuum provides greater ability to discern important geographic differences in healthcare accessibility for South Carolina Medicaid FFS enrollees. MPR has developed a geospatial classification system specific to South Carolina to identify high-risk/underserved ZIP Code Tabulation Areas (ZCTAs) in the state. ZCTAs are U.S. Census Bureau-defined enumeration units spatially approximating United States Postal Service ZIP Code delivery areas. The classification system reflects the level of urbanization (i.e., the relative mix of urban and rural residents) in each of the state's 424 ZCTAs.

The U.S. Census Bureau classifies all individuals in the nation as either “urban” or “rural” residents. Those living in census-designated urbanized areas of 50,000 or

Figure 1. Urban, Suburban, and Rural Areas in South Carolina



more people or urban clusters of 2,500 to 49,999 people are classified as “urban.” All other residents are classified as “rural.” Based on this definition, a ZCTA-level 3-class taxonomy representing South Carolina’s urban/rural continuum was derived (Figure 1). Urban/rural classes are specified as follows: **Urban:** greater than 72.5% urban; **Suburban:** between 43.0% and 72.5% urban (inclusive); **Rural:** less than 43.0% urban. The explicit definition of the state’s urban/rural continuum provides greater ability to discern important geographic differences in healthcare accessibility, utilization, and outcomes for South Carolina Medicaid enrollees.

B. South Carolina General Population Trends, 2012 to 2015

An evaluation of general population trends in South Carolina can inform the assessment of state Medicaid FFS population change. U.S. Census American Community Survey (ACS) estimates were used to examine recent population and sub-population trends for South Carolina as a whole and urban, suburban, and rural portions of the state.

South Carolina has experienced sustained population growth in recent years. From 2012 to 2015 the state's total population increased from roughly 4.6 million to 4.9 million. The greatest absolute and relative population growth occurred in urban areas of the state (Figure 2). More than half (~55%) of all South Carolinians reside in urban communities; a roughly equal proportion (~ 23%) live in suburban and rural areas. Approximately 1 in 5 state residents is children 0 to 18 years of age. The state's child population grew by just 0.2% between 2012 and 2014 (from 1,077,822 to 1,080,028). In contrast, the number of non-elderly adults ages 19 to 64 increased by 1.4% in the same period (from 2,912,431 to 2,951,794). The non-elderly adult population in South Carolina thus is growing faster than the child population. Females of child-bearing age (15 to 44 years) constitute one-fifth of South Carolina's total population. The number of females of child-bearing age rose from 928,290 in 2012 to 933,015 in 2014, an increase of 0.5%.

Figure 2. Total Population in South Carolina, 2012 to 2015†

† Population estimates for 2015 come from the U.S. Census PEPANNRES (Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015). Population estimates for 2012-2014 come from the U.S. Census ACS 2014 5-Year Estimates, Age by Sex (B01001) table.



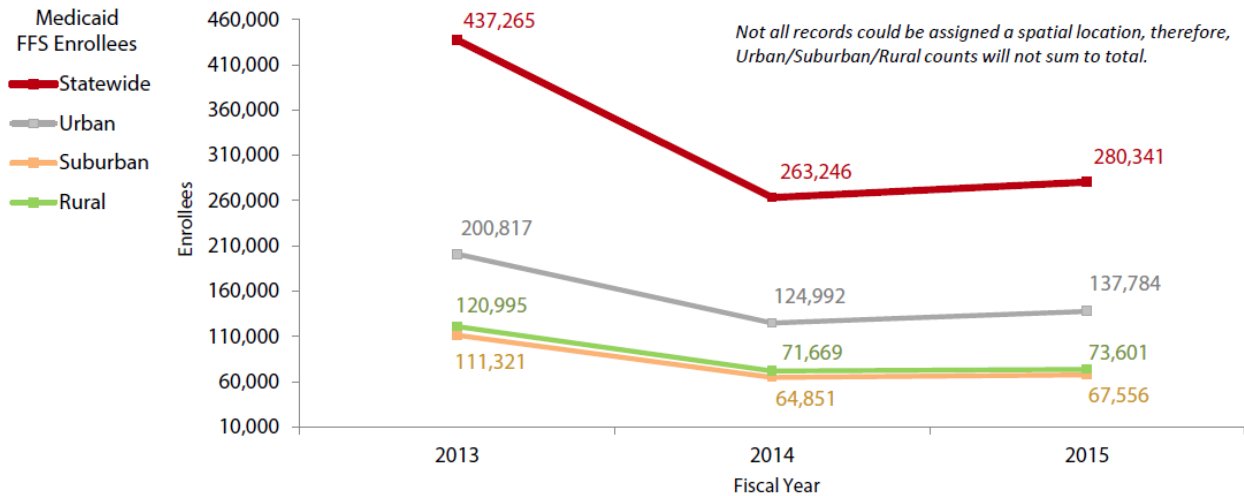
C. South Carolina Medicaid FFS Enrollment, FY2013 to FY2015

South Carolina’s full-benefit Medicaid FFS population decreased by 36% from 2013 to 2015 (based on eligibility as of June 30th of respective fiscal years). This decrease reflects the continued transition of state Medicaid participants from FFS to managed care. The following sections explore enrollment patterns for the state’s full-benefit Medicaid FFS population as well as for full-benefit Medicaid FFS sub-populations: children (ages 0-18 years), non-elderly adults (ages 19-64 years), and women of child-bearing age (ages 15-44 years).

Total Medicaid FFS Enrollees

Total South Carolina Medicaid FFS enrollment fell from 437,265 in FY2013 to 263,246 in FY2014 (Figure 3), a decline of 40% reflecting the transition of FFS enrollees to managed care. The state’s FFS population increased somewhat (6%) between FY2014 and FY2015. This increase represents post-Affordable Care Act (ACA) new enrollment based on eligibility determination.

Figure 3. Total South Carolina Medicaid FFS Enrollees (Full-Benefit), FY2013 to FY2015, based on eligibility as of June 30th of respective fiscal years

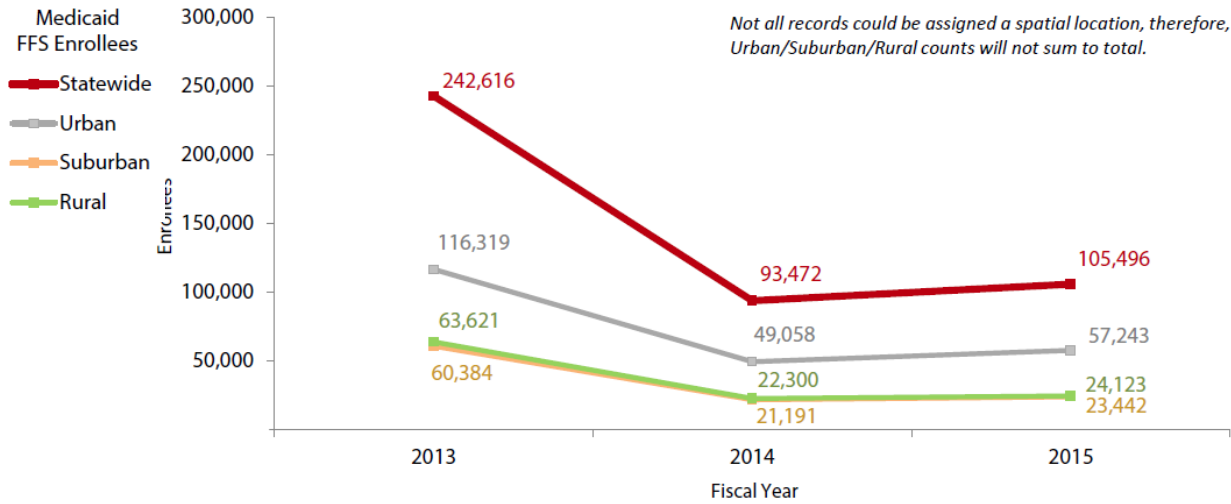


The greatest absolute and relative declines in total FFS enrollment from FY2013 to FY2015 were similar in urban portions of the state.

Child FFS Enrollees (0-18 Years)

The number FFS Medicaid-enrolled children (0 to 18 years) decreased by 61% from FY2013 to FY2014 (Figure 4). This decline represents a shift of child enrollees from FFS into Medicaid managed care. From FY2014 to FY2015 the child Medicaid FFS sub-population increased by 13% as a result of post-ACA new enrollment based on eligibility determination.

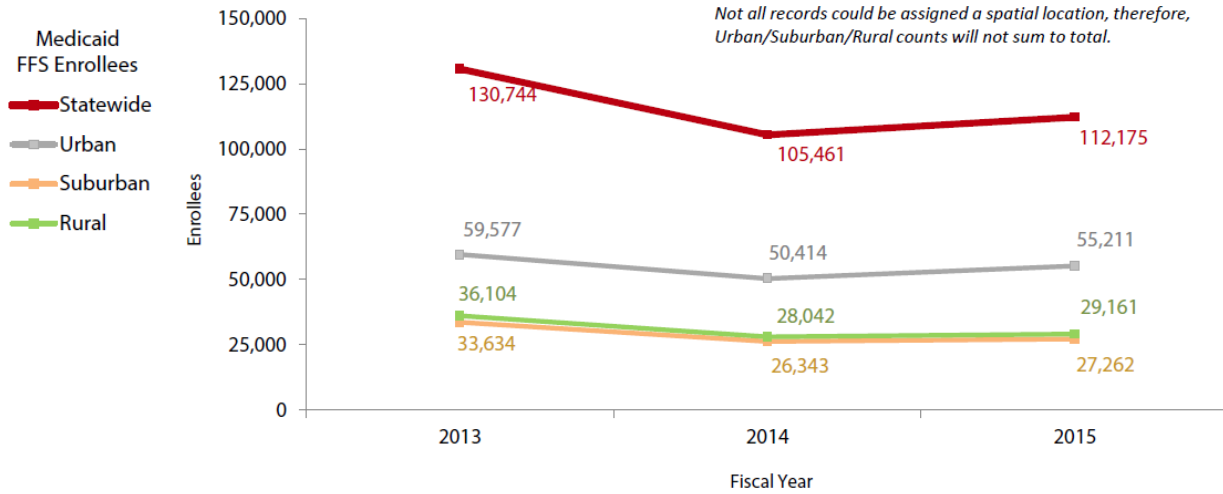
Figure 4. Total South Carolina Child Medicaid FFS Enrollees Ages 0 to 18 Years (Full-Benefit), FY2013 to FY2015, based on eligibility as of June 30th of respective fiscal years



The greatest absolute and relative declines in this sub-population occurred in urban areas.

Non-Elderly Adult FFS Enrollees (19-64 Years)

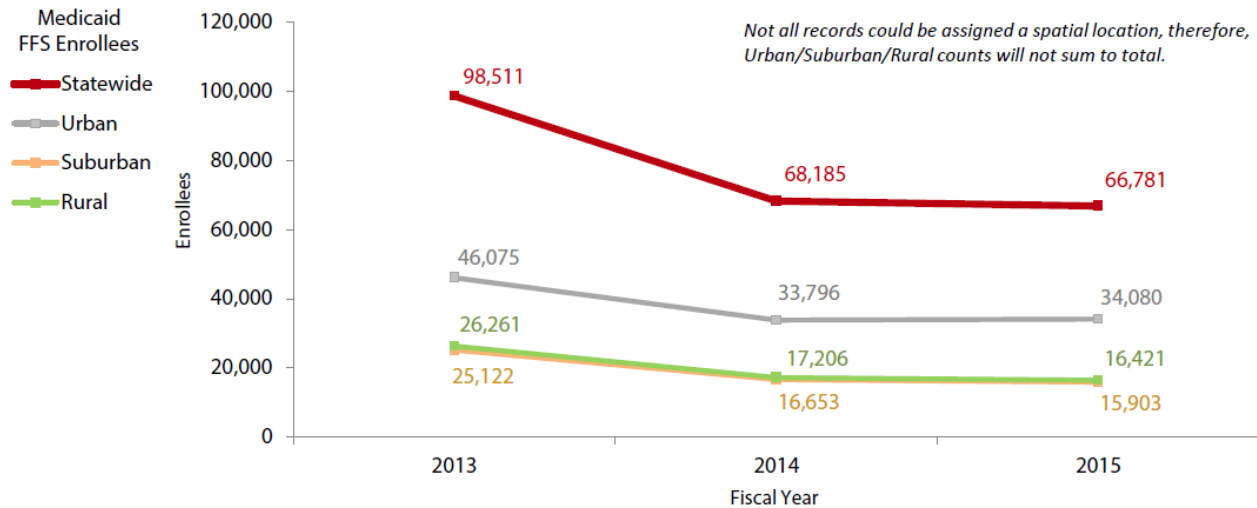
Figure 5. Total South Carolina Adult Medicaid FFS Enrollees Ages 19 to 64 Years (Full-Benefit), FY2013 to FY2015, based on eligibility as of June 30th of respective fiscal years



The full-benefit non-elderly adult, Medicaid FFS sub-population, decreased by 19% from FY2013 to FY2014, as non-elderly adult enrollees transitioned to Medicaid managed care. Between FY2014 and FY2015 the number of non-elderly adults in Medicaid FFS rose by 6%. This increase reflects post-ACA new enrollment based on eligibility determination. Adult FFS enrollment patterns were similar in urban, suburban, and rural areas over the three-year measurement period (Figure 5).

Females of Child-Bearing Age Enrolled in FFS (15-44 Years)

Figure 6. Total Females of Child-Bearing Age (15 to 44 Years) Enrolled in South Carolina Medicaid FFS (Full-Benefit), FY2013 to FY2015, based on eligibility as of June 30th of respective fiscal years



Women of child-bearing age potentially require access to obstetrics/gynecology services, although not all women in this age category utilize such services. The number of full-benefit FFS Medicaid-enrolled females of child-bearing age (15 to 44 years) fell from 98,511 in FY2013 to 66,781 in FY2015, a decrease of 32% statewide, and in suburban and rural areas, FFS enrollment among women of child-bearing age declined each year. In urban areas, however, this sub-population decreased by 27% from FY2013 to FY2014, then increased slightly (1%) from FY2014 to FY2015 (Figure 6).

II. Access to Healthcare for South Carolina Medicaid FFS Enrollees

This report evaluates access to care across four health service categories:

- Primary care, physician specialists, and dental care;
- Behavioral health services;
- Obstetric services; and
- Home health services.

Overall, the number of full-benefit Medicaid FFS enrollees decreased over the three-year analysis period (as noted, the number of total FFS beneficiaries declined substantially from FY2013 to FY2014, but then increased moderately from FY2014 to FY2015). In order to ensure adequate healthcare for South Carolina Medicaid enrollees still in FFS, it is critical to evaluate the number of providers available to serve Medicaid FFS participants. This section highlights the number of providers by type and specialty that are available to serve Medicaid FFS enrollees from FY2013 to FY2015 and presents provider-to-enrollee ratios to assess access to healthcare services for the Medicaid FFS population.

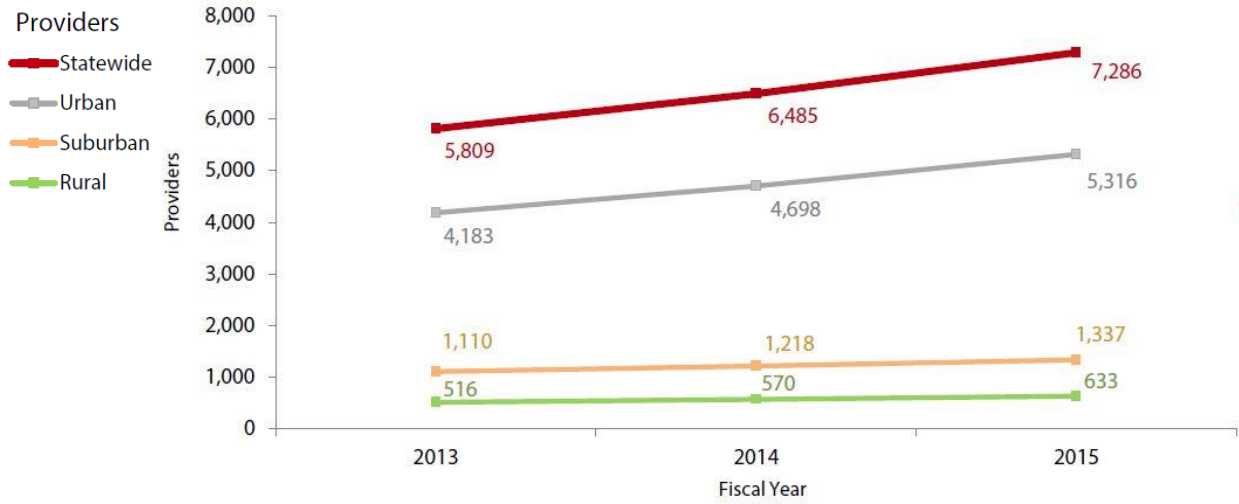
Because some practitioners deliver healthcare at multiple locations, provider-specific weights have been applied to approximate the proportion of provider time devoted to care delivery at each site. Weighted provider counts calculated for urban, suburban, and rural areas have been rounded to whole numbers (Appendix B, Section C). **[Note:** Although healthcare provider-to-Medicaid FFS enrollee ratios provide comparable measures of access to care across time, the ratios reported do not consider competition for providers from Medicaid managed care beneficiaries or from patients outside the Medicaid system.]

A. Primary Care, Physician Specialty Care, and Dental Care Providers

Primary Care Providers

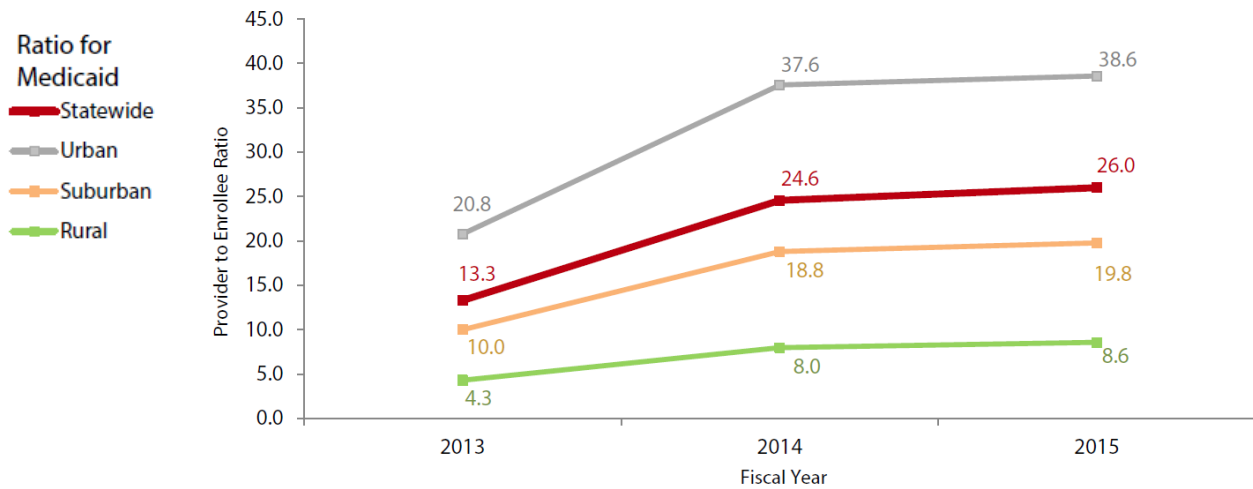
The number of South Carolina Medicaid primary care providers (including family practice, general practice, obstetrics and gynecology, internal medicine, pediatrics, nurse practitioners, physician assistants, federally qualified health clinics, and rural health clinics) rose from 5,809 in FY2013 to 7,286 in FY2015 (Figure 7). This change is a 25% increase in the number of primary care providers available to serve the healthcare needs of the Medicaid enrollees.

Figure 7. Number of South Carolina Medicaid Primary Care Providers, FY2013 to FY2015



The ratio of primary care providers to 1,000 FFS enrollees increased from 13.3 to 26.0. Provider-to-enrollee ratios improved in urban, suburban, and rural portions of the state (Figure 8).

Figure 8. Ratio of Primary Care Providers per 1,000 Medicaid FFS Enrollees in South Carolina, FY2013 to FY2015



Physician Specialists

For purposes of access-to-care evaluation, physician specialists included the following: allergy and immunology, anesthesiology, cardiovascular diseases, chiropractic, dermatology, emergency medicine, endocrinology and metabolism, gastroenterology, geriatrics, hematology, infectious diseases, nephrology/ESRD, neurology, nuclear medicine, occupational medicine, oncology, ophthalmology, osteopathy, optician, optometry, otorhinolaryngology, hospital pathology, pathology, pathology – clinical, physical medicine & rehabilitation, podiatry, pulmonary medicine, neonatology, radiology, radiology – diagnostic, radiology – therapeutic, rheumatology, surgery – cardiovascular, surgery – colon and rectal, surgery – general, surgery – neurological, surgery – orthopedic, surgery – plastic, surgery – thoracic, and surgery – urological.

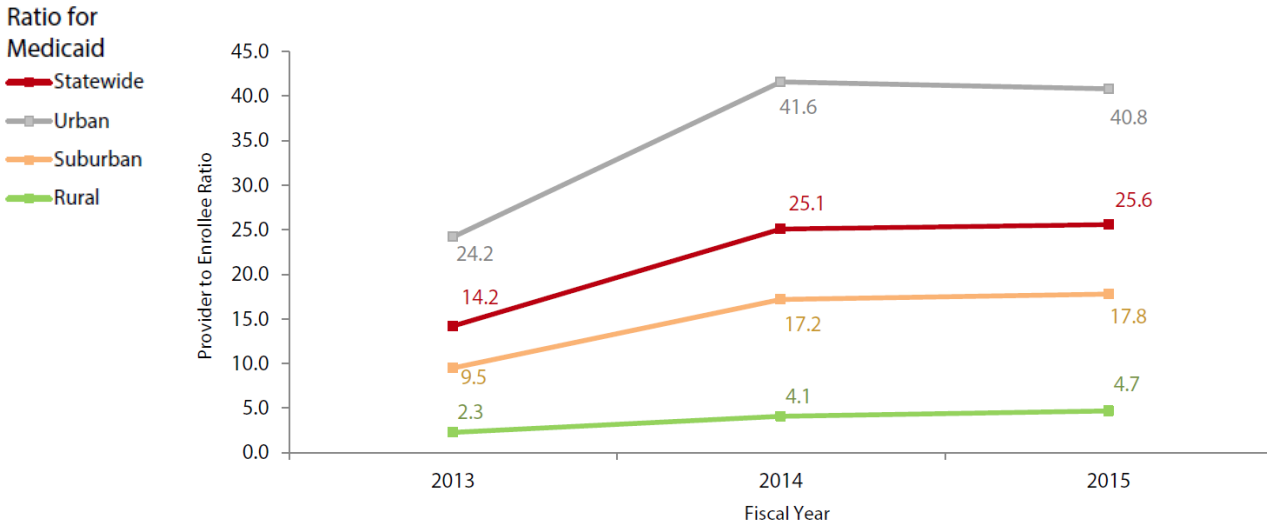
The number of South Carolina Medicaid physician specialists rose from 6,199 in FY2013 to 7,168 in FY2015, an increase of 16% (Figure 9).

Figure 9. Number of South Carolina Medicaid Physician Specialists, FY2013 to FY2015



Moreover, the specialty provider-to-enrollee ratio increased over the measurement period, from 14.2 to 25.6 per 1,000 FFS enrollees.

Figure 10. Ratio of Physician Specialists per 1,000 Medicaid FFS Enrollees in South Carolina, FY2013 to FY2015



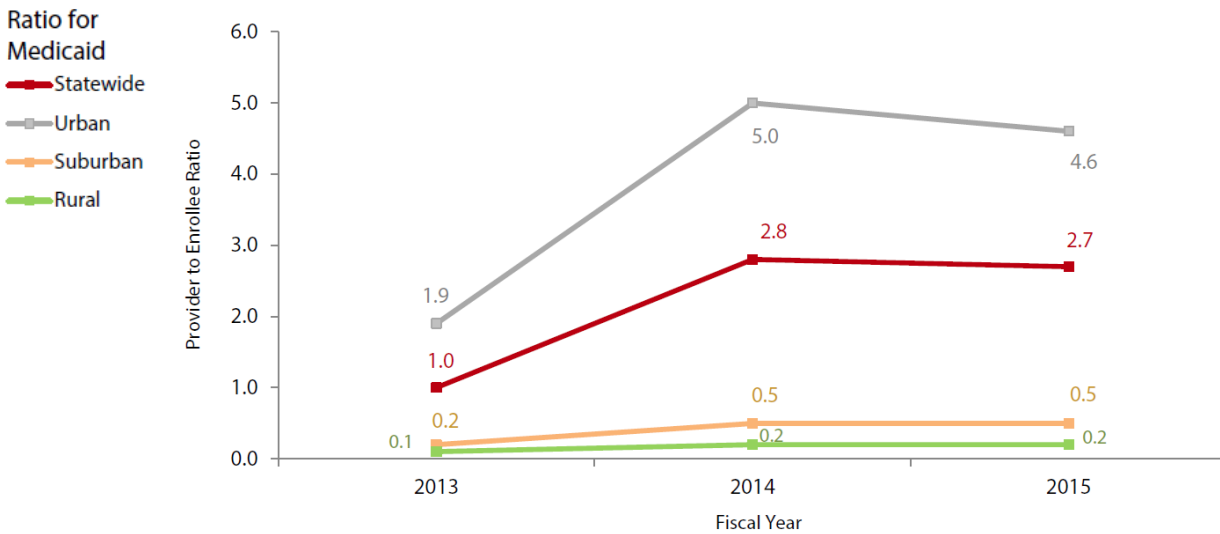
Increases in physician specialty provider-to-enrollee ratios were observed across the urban/rural continuum (Figure 10). It should be noted that the calculated ratios assume all Medicaid FFS enrollees present for specialty care. They do not take into account medical necessity (e.g. disease status of enrollees). Not all FFS enrollees require specialty physician services.

Pediatric Subspecialists

The number of South Carolina Medicaid pediatric subspecialists (including pediatric allergists, pediatric cardiologists, pediatric surgeons, and all other pediatric subspecialists) increased from 234 in FY2013 to 281 in FY2015 (Appendix A4).

The ratio of pediatric subspecialists per 1,000 children ages 0 to 18 years enrolled in Medicaid FFS rose from 1.0 to 2.7 statewide during the measurement period, with the greatest increase occurring in urban areas (Figure 11). The sharp increase from FY2013 to FY2014 reflects the decline in the number of children enrolled in FFS in the same period (Figure 4).

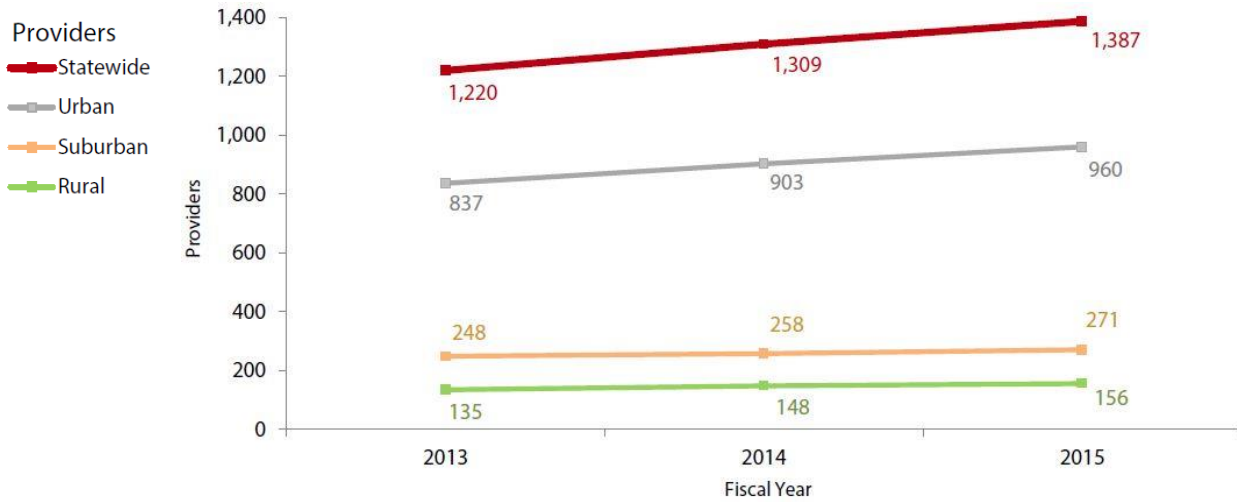
Figure 11. Ratio of Pediatric Subspecialists per 1,000 Child Medicaid FFS Enrollees (0-18 Years) in South Carolina, FY2013 to FY2015



Dental Care Providers

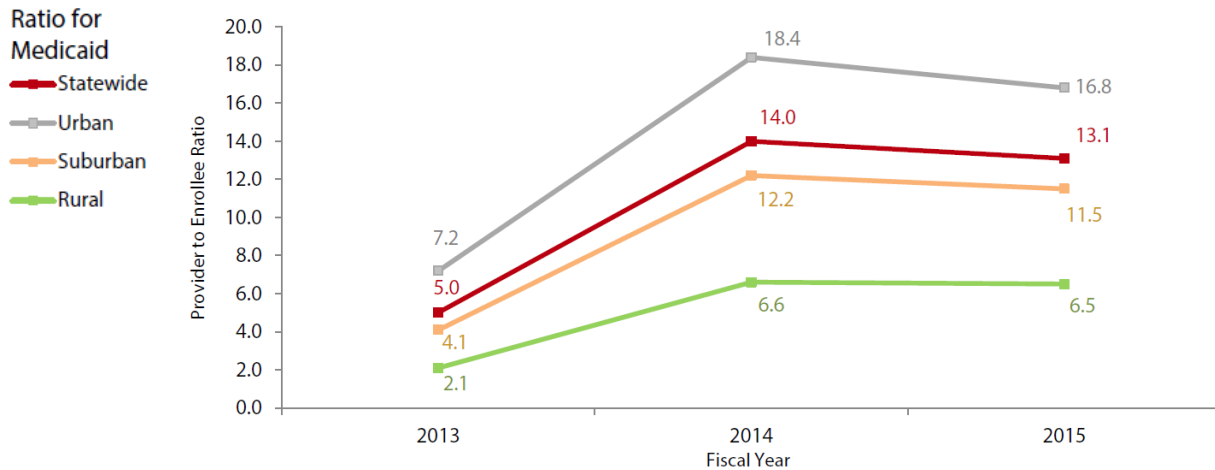
The number of Medicaid dental care providers for children (including general dentistry, orthodontics, pedodontics, endodontics, periodontics, and oral surgery) rose from 1,220 in FY2013 to 1,387 in FY2015 (Figure 12). This increase (14%), is similar to the growth of dental care providers for adults (including general dentistry, orthodontics, endodontics, periodontics, and oral surgery). (Appendix A4).

Figure 12. Number of South Carolina Medicaid Dental Care Providers Including Pedodontists, Which Only Serve Children, FY2013 to FY2015



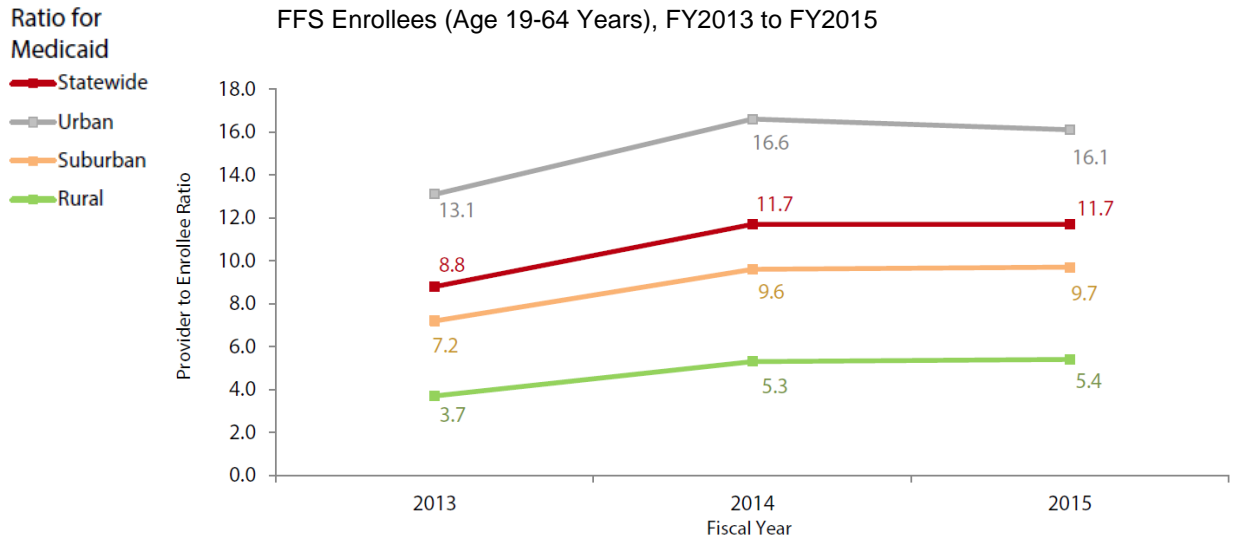
Statewide, the dental care provider-to-child FFS enrollee ratio increased from 5.0 in FY2013 to 13.1 in FY2015 (Figure 13).

Figure 13. Ratio of Dental Care Providers per 1,000 Child South Carolina Medicaid FFS Enrollees (Age 0-18 Years), FY2013 to FY2015



The dental care provider-to-adult FFS enrollee ratio increased over the measurement period, from 8.8 to 11.7 per 1,000 adult FFS enrollees. Patterns of provider-to-adult enrollee ratio change were similar in urban, suburban, and rural areas (Figure 14).

Figure 14. Ratio of Dental Care Providers per 1,000 Adult South Carolina Medicaid FFS Enrollees (Age 19-64 Years), FY2013 to FY2015

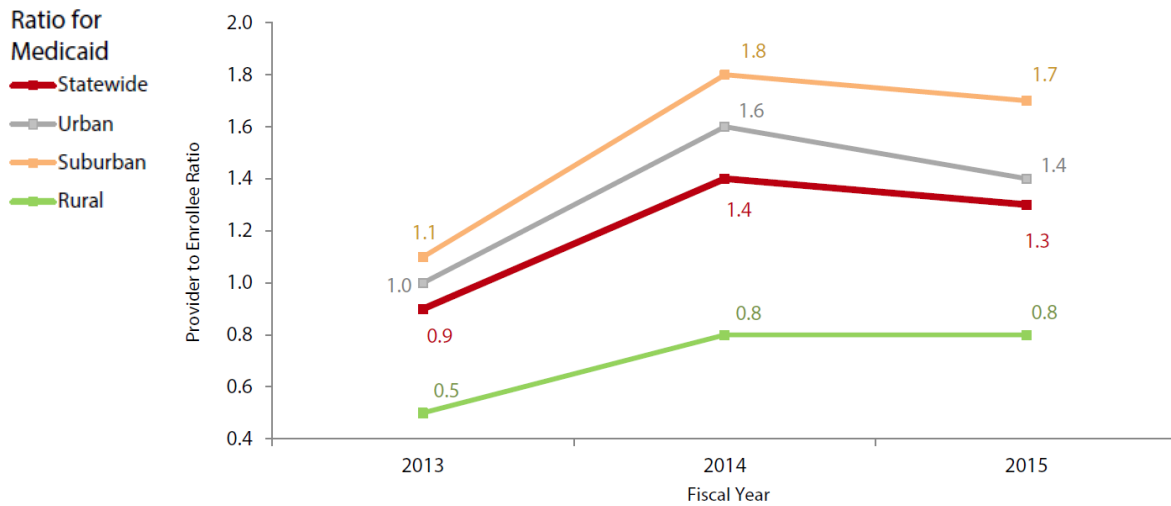


B. Behavioral Health Services

Behavioral Health Facilities

State-supported behavioral health facilities include the Department of Alcohol and Other Drug Abuse Services (DAODAS), Department of Mental Health (DMH), DMH Psychiatric Hospitals, inpatient and outpatient facilities that treat individuals for psychoactive substance abuse or dependence (DAODAS), and intermediate care facilities for persons with intellectual disabilities (South Carolina Department of Disabilities and Special Needs). The total number of state-supported behavioral health facilities declined slightly (2%) between FY2013 and FY2015. The impacted facilities included outpatient DAODAS (loss of two facilities) and DDSN (loss of four facilities). Statewide, the facility-to-enrollee ratios increased from 0.9 in FY2013 to 1.3 in FY2015 (Figure 15).

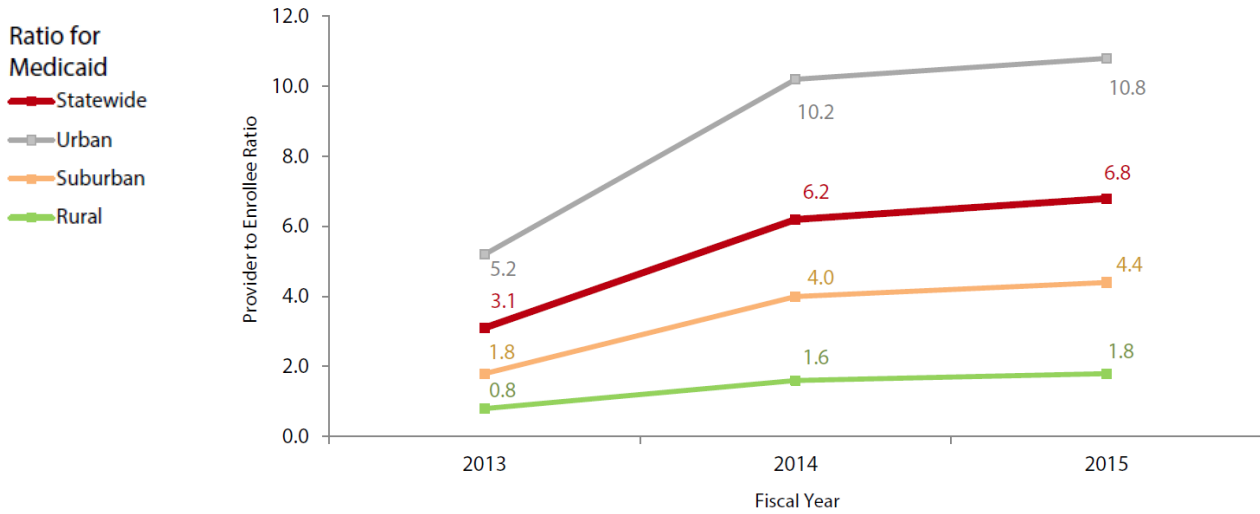
Figure 15. Ratio of Behavioral Health Facilities per 1,000 South Carolina Medicaid FFS Enrollees, FY2013 to FY2015



Behavioral Health Providers

The number of behavioral health providers has seen an increase of almost 41% from FY2013 to FY2015 (Appendix A2). These providers includes therapist/multiple specialty group, private mental health, DMH, psychiatry, psychiatry – child, psychologist, social worker, alcohol & substance abuse, mental retardation, SC Continuum of Care, developmental rehabilitation, licensed marriage and family therapist, licensed master social worker, licensed professional counselor, and licensed independent social worker. The three-year trend analysis shows increasing behavioral health provider-to-enrollee ratios, with the largest absolute increase occurring in urban areas and the greatest relative increase in suburban areas (Figure 16).

Figure 16. Ratio of South Carolina Medicaid Behavioral Health Providers per 1,000 Medicaid FFS Enrollees, FY2013 to FY2015

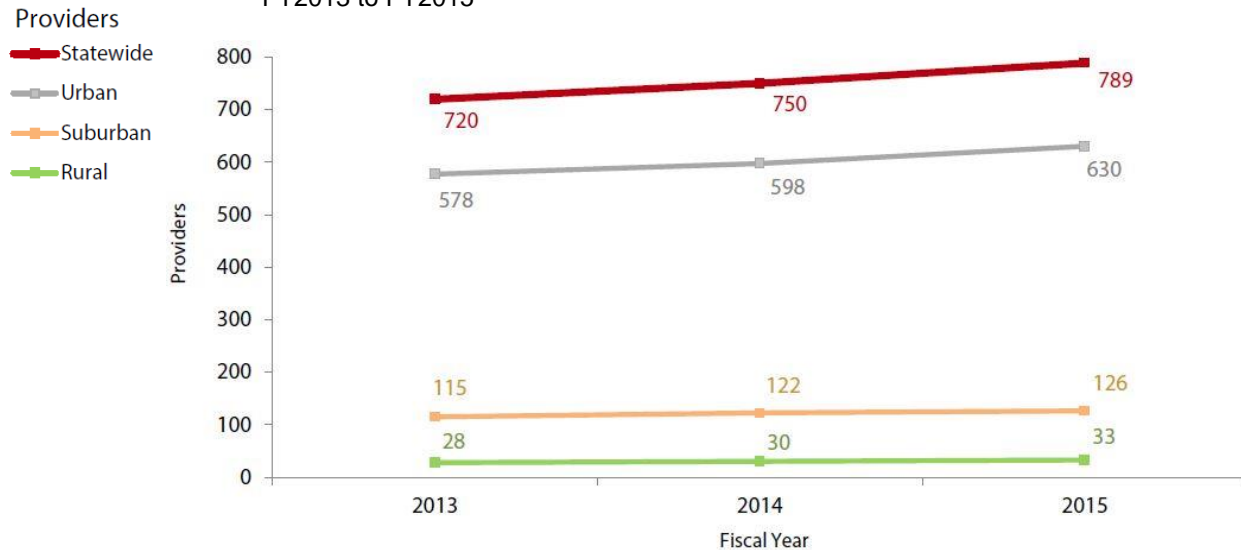


C. Obstetric Services

Obstetrics/Gynecology (Ob/Gyn) Providers

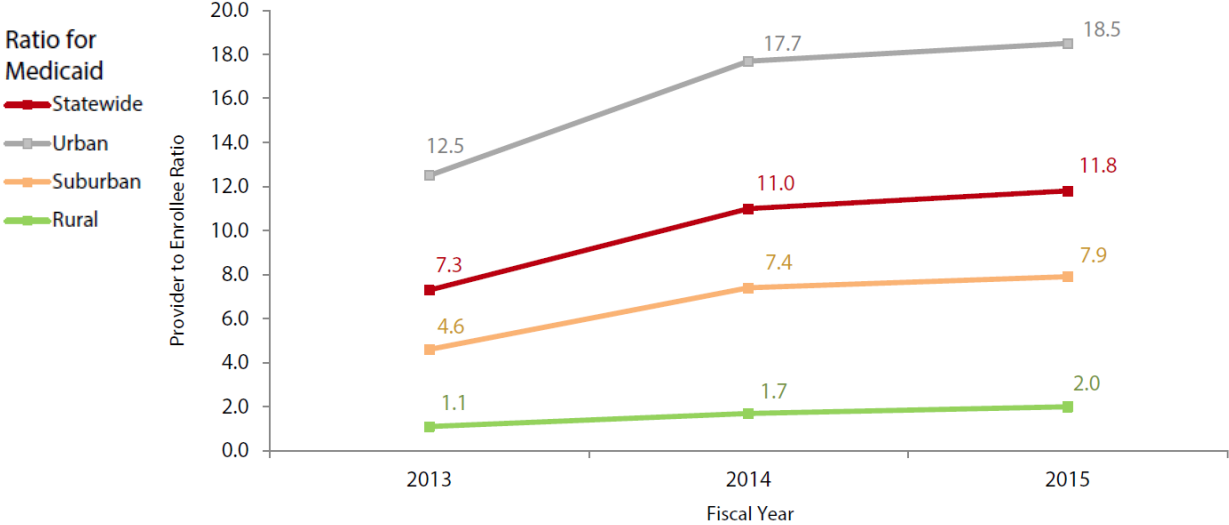
The number of Ob/Gyn providers, which includes the specialties midwife, obstetrics, and gynecology, saw steady growth over the three-year analysis period, up 4% from FY2013 to FY2014 and 5% from FY2014 to FY2015 (Figure 17).

Figure 17. Number of South Carolina Medicaid Obstetrics/Gynecology Providers, FY2013 to FY2015



Obstetrics/gynecology provider-to-enrollee ratios increased from 7.3 in FY2013 to 11.8 in FY2015 (Figure 18). The largest relative increase was in rural areas (82% from FY2013 to FY2015). It should be noted that the provider-to-enrollee ratios in this section reflect the potential population that could be served by Ob/Gyn providers. They do not reflect ratios of true utilization among women needing pre- or postnatal care. Not all women included in this population will utilize Ob/Gyn services.

Figure 18. Ratio of South Carolina Medicaid Obstetrics/Gynecology Providers per 1,000 Female Medicaid FFS Enrollees Ages 15-44 Years, FY2013 to FY2015

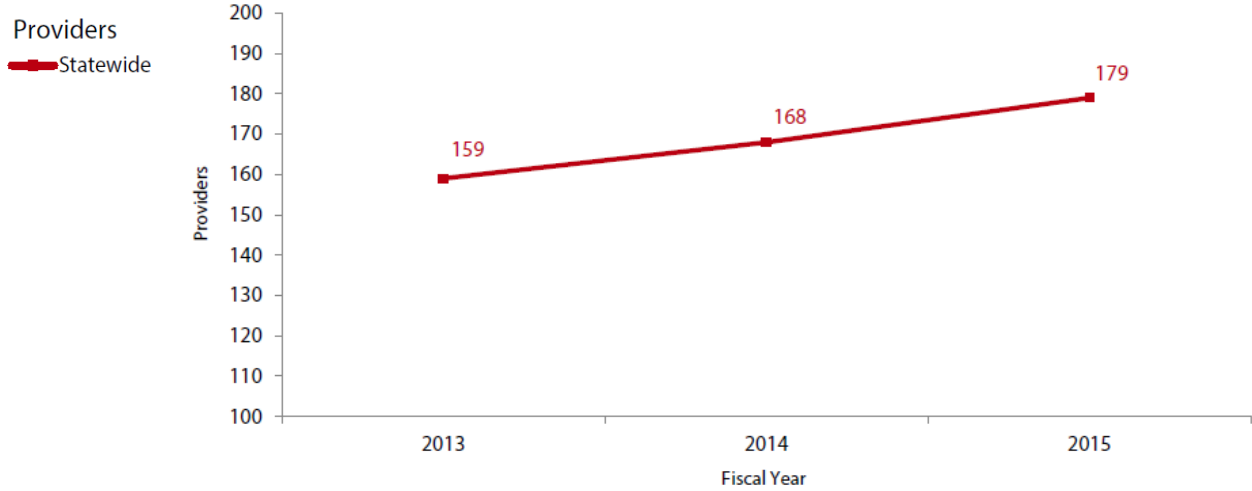


D. Home Health Services

Home Health Providers

Because home health services are delivered in the homes of Medicaid enrollees and not at provider locations, we did not evaluate the geographic distribution of home health service provider sites across the urban/rural continuum. Instead, we report home health provider counts at the state level.

Figure 19. Number of South Carolina Medicaid Home Health Providers, FY2013 to FY2015



Provider-to-enrollee ratios were not calculated because home health utilization is based on medical necessity, and no FFS home health enrollee population could be estimated. The number of home health providers, which includes all providers with a provider type code of “Home Health,” has increased steadily over the three-year period (6% from FY2013 to FY2014, 7% from FY2014 to FY2015) as seen in Figure 19 above.

III. Rate Comparison

Figure 20. Medicaid FFS Rates Compared to MCO Rates

	FFS Rates Based on Actual Utilization			MCO Encounter Rates			% of MCO fee schedule
	Units	Expenditures	Average Rate	Units	Plan Paid Amt	Average Rate	
Top 5 Procedure Codes							
Primary Care							
Family/General Practice							
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	627	\$ 56,208.10	\$ 89.65	6,795	\$ 502,323.58	\$ 73.93	121%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	459	\$ 27,646.58	\$ 60.23	7,645	\$ 383,248.39	\$ 50.13	120%
T1015 SUBSTANCE ABUSE EXAM/CLINIC VIST/ENCOUNT	388	\$ 56,464.87	\$ 145.53	152	\$ 21,193.54	\$ 139.43	104%
99283 E/M EMERGENCY DEPARTMENT SERV LEVEL 3	339	\$ 18,352.32	\$ 54.14	3,489	\$ 161,999.42	\$ 46.43	117%
95165 PROF SVGS SUPV/PROV ANTIG IMMUNO SI/MULTI	225	\$ 1,912.50	\$ 8.50	20	\$ 170.00	\$ 8.50	100%
Internal Medicine							
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	22,683	\$1,438,615.68	\$ 63.42	36,247	\$ 2,010,712.11	\$ 55.47	114%
99231 E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	7,714	\$264,457.54	\$ 34.28	5,318	\$ 164,144.26	\$ 30.87	111%
99233 E/M IP SERV SUBSEQ HOSP CARE LEVEL 3	7,184	\$663,130.80	\$ 92.31	11,382	\$ 911,821.65	\$ 80.11	115%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	5,639	\$306,712.19	\$ 54.39	52,112	\$ 2,476,573.22	\$ 47.52	114%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	4,818	\$398,155.08	\$ 82.64	44,694	\$ 3,240,791.73	\$ 72.51	114%
Pediatrics							
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	42,374	\$2,513,301.57	\$59.31	550,123	\$ 28,439,351.53	\$ 51.70	115%
90461 IMMUN ADMIN <=AGE 18; ANY ROUTE,EA ADDL	26,420	\$281,772.65	\$10.67	270,130	\$ 3,315,967.87	\$ 12.28	87%
90460 IMMUN ADMIN <=AGE 18; ANY ROUTE,1ST VACC	22,636	\$385,875.58	\$17.05	271,358	\$ 3,522,946.69	\$ 12.98	131%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	22,576	\$1,948,820.43	\$86.32	242,722	\$ 18,442,668.74	\$ 75.98	114%
T1015 SUBSTANCE ABUSE EXAM/CLINIC VIST/ENCOUNT	22,006	\$2,389,894.46	\$108.60	15,684	\$ 1,726,709.48	\$ 110.09	99%
Specialist Care							
Cardiology							
93010 EKG INTERPRETATION REPORT ONLY	6,343	\$ 41,461.74	\$ 6.54	20,195	\$ 138,867.55	\$ 6.88	95%
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	2,273	\$ 116,646.31	\$ 51.32	5,045	\$ 262,846.75	\$ 52.10	98%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	1,418	\$ 93,144.56	\$ 65.69	9,682	\$ 650,756.33	\$ 67.21	98%
93000 EKG 12 LEAD	1,190	\$ 17,684.54	\$ 14.86	8,011	\$ 122,607.28	\$ 15.30	97%
Dental							
D0120 PERIODIC ORAL EXAM	319,605	\$ 6,956,793.74	\$ 21.77	N/A	N/A	N/A	
D1120 PROPHYLAXIS-CHILD	301,470	\$ 8,443,619.31	\$ 28.01	N/A	N/A	N/A	
D0272 BITEWING-TWO FILMS	275,951	\$ 5,193,597.98	\$ 18.82	N/A	N/A	N/A	
D1208 TOPICAL APPLICATION OF FLUORIDE	241,204	\$ 3,824,527.26	\$ 15.86	N/A	N/A	N/A	
D1206 TOPICAL FLUORIDE VARNISH, THERAPEUTIC AP	178,740	\$ 2,826,234.14	\$ 15.81	N/A	N/A	N/A	
Surgery							
99231 E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	2,517	\$ 72,048.11	\$ 28.62	3,888	\$ 113,816.34	\$ 29.27	98%
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	1,719	\$ 88,633.65	\$ 51.56	3,203	\$ 167,804.48	\$ 52.39	98%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	1,100	\$ 43,544.31	\$ 39.59	10,756	\$ 485,771.95	\$ 45.16	88%
99212 E/M OFFICE/OP SERV EST PATIENT LEVEL 2	836	\$ 17,143.44	\$ 20.51	6,839	\$ 168,043.68	\$ 24.57	83%
99291 E/M CRIT CARE, FIRST 30-74 MINUTES	756	\$ 122,786.60	\$ 162.42	1,017	\$ 165,303.52	\$ 162.54	100%
Therapy							
92507 TRTMT SP/LANG/VOICE/COMM AND/OR AUDI IND	377,477	\$ 9,014,035.45	\$ 23.88	556,433	\$ 12,689,399.42	\$ 22.80	105%
97530 THERAPEUTIC ACTIVITIES PT CONTACT 15 MIN	269,178	\$ 5,428,416.51	\$ 20.17	221,950	\$ 4,777,197.54	\$ 21.52	94%
97110 THERAPEUTIC EXER 1 OR MORE AREAS EA 15 M	174,943	\$ 3,402,811.11	\$ 19.45	188,908	\$ 3,885,360.84	\$ 20.57	95%
92508 TRTMT SP/LANG/VOICE/COMM AUDIO PROC GROU	6,586	\$ 72,500.46	\$ 11.01	5,128	\$ 52,230.38	\$ 10.19	108%
97113 AQUATIC THERAPY WITH THERAPEUTIC EXERCIS	1,646	\$ 33,312.33	\$ 20.24	1,771	\$ 44,386.73	\$ 25.06	81%
Behavioral Health							
H2017 PSYCHOSOCIAL REHABILITATION SVC	7,371,242	\$54,494,473.06	\$ 7.39	N/A	N/A	N/A	
H2014 SKILLS TRAINING AND DEVELOPMENT	2,501,651	\$19,566,255.35	\$ 7.82	N/A	N/A	N/A	
S9482 FAMILY STABILIZATION SVCS,PER 15 MINUTES	574,533	\$4,928,314.61	\$ 8.58	N/A	N/A	N/A	
T1027 FAMILY TRAINING AND COUNSELING FOR CHIL	498,506	\$12,567,554.74	\$ 25.21	N/A	N/A	N/A	
T1016 CASE MANAGEMENT, EACH 15 MINUTES	312,453	\$10,361,975.73	\$ 33.16	N/A	N/A	N/A	
OB/GYN							
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	27,972	\$1,576,988.85	\$56.38	206,377	\$ 10,165,550.27	\$ 49.26	114%
81002 UA/DIP STK-TBLT W/O MICRO NONAUTO(SEE CO	19,588	\$58,693.54	\$3.00	119,347	\$ 378,627.42	\$ 3.17	94%
81025 URINE PREGNANCY TST/VISUAL COLOR COMPARI	7,378	\$54,242.88	\$7.35	21,350	\$ 165,936.28	\$ 7.77	95%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	6,649	\$575,674.33	\$86.58	26,758	\$ 2,008,777.14	\$ 75.07	115%
36415 COLLECTION OF VENOUS BLOOD/VENIPUNCTURE	5,590	\$13,612.80	\$2.44	16,214	\$ 41,444.61	\$ 2.56	95%
Home Health							
S9126 HOSPICE CARE IN THE HOME PER DIEM	63,765	\$ 9,362,587.16	\$146.83	62	\$ 4,950.00	\$ 79.84	184%
A9900 MISC SUPPLY,ACCESSORY &/OR SVC COMPONENT	36,502	\$ 236,212.74	\$6.47	15,091	\$ 48,817.04	\$ 3.23	200%
T1030 NURSING CARE IN HOME BY RN PER DIEM	17,805	\$ 1,493,442.81	\$83.88	20,549	\$ 1,769,244.11	\$ 86.10	97%
S9131 PHYSICAL THERAPY IN HOME, PER DIEM	11,416	\$ 1,108,976.88	\$97.14	13,716	\$ 1,358,190.61	\$ 99.02	98%
T2046 HOSPICE LTC, ROOM & BOARD; PER DIEM	6,972	\$ 1,149,395.42	\$164.86	N/A	N/A	N/A	N/A

Figure 21. Medicaid FFS Rates Compared to Medicare Rates

	2015 Fee Schedule Rate		2015 Medicare Rates		% of Medicare Fee Schedule - In Facility	% of Medicare Fee Schedule - Non Facility
	In Facility	Not In Facility	Facility Price	Non Facility Price		
Top 5 Procedure Codes						
Primary Care						
Family/General Practice						
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 79.41	\$ 108.88	96%	94%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 51.38	\$ 73.30	97%	95%
99283 E/M EMERGENCY DEPARTMENT SERV LEVEL 3	\$ 60.09	\$ 60.09	\$ 62.88	\$ 62.88	96%	96%
95165 PROF SVS SUPV/PROV ANTIG IMMUNO SI/MULTI	\$ 8.50	\$ 8.50	\$ 3.23	\$ 12.94	263%	66%
Internal Medicine						
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 69.99	\$ 69.99	\$ 73.30	\$ 73.30	95%	95%
99231 E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	\$ 38.05	\$ 38.05	\$ 39.53	\$ 39.53	96%	96%
99233 E/M IP SERV SUBSEQ HOSP CARE LEVEL 3	\$ 100.87	\$ 100.87	\$ 105.64	\$ 105.64	95%	95%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 51.38	\$ 73.30	97%	95%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 79.41	\$ 108.88	96%	94%
Pediatrics						
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 51.38	\$ 73.30	97%	95%
90461 IMMUN ADMIN <=AGE 18; ANY ROUTE,EA ADDL	\$ 11.88	\$ 11.88	\$ 12.94	\$ 12.94	92%	92%
90460 IMMUN ADMIN <=AGE 18; ANY ROUTE,1ST VACC	\$ 20.16	\$ 20.16	\$ 25.51	\$ 25.51	79%	79%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 79.41	\$ 108.88	96%	94%
Specialist Care						
Cardiology						
93010 EKG INTERPRETATION REPORT ONLY	\$ 6.69	\$ 6.69	\$ 8.62	\$ 8.62	78%	78%
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 50.31	\$ 50.31	\$ 73.30	\$ 73.30	69%	69%
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 52.04	\$ 68.36	\$ 79.41	\$ 108.88	66%	63%
93000 EKG 12 LEAD	\$ 14.84	\$ 14.84	\$ 17.25	\$ 17.25	86%	86%
Dental						
D0120 PERIODIC ORAL EXAM	\$ 22.00	\$ 22.00	N/A	N/A	*Dental not covered by Medicare	
D1120 PROPHYLAXIS-CHILD	\$ 28.11	\$ 28.11	N/A	N/A		
D0272 BITEWING-TWO FILMS	\$ 18.94	\$ 18.94	N/A	N/A		
Surgery						
99231 E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	\$ 27.88	\$ 27.88	\$ 39.53	\$ 39.53	71%	71%
99232 E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 50.31	\$ 50.31	\$ 73.30	\$ 73.30	69%	69%
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 33.65	\$ 45.37	\$ 51.38	\$ 73.30	65%	62%
99212 E/M OFFICE/OP SERV EST PATIENT LEVEL 2	\$ 17.11	\$ 27.05	\$ 25.87	\$ 44.20	66%	61%
99291 E/M CRIT CARE, FIRST 30-74 MINUTES	\$ 159.05	\$ 188.61	\$ 227.46	\$ 279.20	70%	68%
Therapy						
92507 TRTMT SP/LANG/VOICE/COMM AND/OR AUDI IND	\$ 24.81	\$ 24.81	\$ 80.13	\$ 80.13	31%	31%
97530 THERAPEUTIC ACTIVITIES PT CONTACT 15 MIN	\$ 23.14	\$ 23.14	\$ 35.21	\$ 35.21	66%	66%
97110 THERAPEUTIC EXER 1 OR MORE AREAS EA 15 M	\$ 21.84	\$ 21.84	\$ 32.70	\$ 32.70	67%	67%
92508 TRTMT SP/LANG/VOICE/COMM AUDIO PROC GROU	\$ 11.60	\$ 11.60	\$ 23.72	\$ 23.72	49%	49%
97113 AQUATIC THERAPY WITH THERAPEUTIC EXERCIS	\$ 26.36	\$ 26.36	\$ 43.48	\$ 43.48	61%	61%
Behavioral Health						
H2017 PSYCHOSOCIAL REHABILITATION SVC	\$ 7.39	\$ 7.39	N/A	N/A		
H2014 SKILLS TRAINING AND DEVELOPMENT	\$ 7.82	\$ 7.82	N/A	N/A		
S9482 FAMILY STABILIZATION SVCS,PER 15 MINUTES	\$ 8.58	\$ 8.58	N/A	N/A		
T1027 FAMILY TRAINING AND COUNSELING FOR CHIL	\$ 25.21	\$ 25.21	N/A	N/A		
T1016 CASE MANAGEMENT, EACH 15 MINUTES	\$ 33.16	\$ 33.16	N/A	N/A		
OB/GYN						
99213 E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 51.38	\$ 73.30	97%	95%
81002 UA/DIP STK-TBLT W/O MICRO NONAUTO(SEE CO	\$ 3.12	\$ 3.12	N/A	N/A		
81025 URINE PREGNANCY TST/VISUAL COLOR COMPARI	\$ 7.71	\$ 7.71	N/A	N/A		
99214 E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 79.41	\$ 108.88	96%	94%
36415 COLLECTION OF VENOUS BLOOD/VENIPUNCTURE	\$ 2.50	\$ 2.50	N/A	N/A		
Home Health						
S9126 HOSPICE CARE IN THE HOME PER DIEM			N/A	N/A	*Medicare pays home health agencies (HHAs) a predetermined base payment under their prospective payment system	
A9900 MISC SUPPLY,ACCESSORY &/OR SVC COMPONENT			N/A	N/A		
T1030 NURSING CARE IN HOME BY RN PER DIEM			N/A	N/A		
S9131 PHYSICAL THERAPY IN HOME, PER DIEM			N/A	N/A		
T2046 HOSPICE LTC, ROOM & BOARD; PER DIEM						

Figure 22. Medicaid FFS Rates Compared to SC State Health Plan Rates

	2015 Medicaid Fee Schedule Rate		2015 SC State Health Plan Rates		% of SC State Health Plan Rates - In Facility	% of SC State Health Plan Rates - Non Facility	
	In Facility	Not In Facility	Facility Price	Non Facility Price			
Top 5 Procedure Codes							
Primary Care							
Family/General Practice							
99214	E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 77.54	\$ 104.38	98%	98%
99213	E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 50.45	\$ 68.79	98%	101%
99283	E/M EMERGENCY DEPARTMENT SERV LEVEL 3	\$ 60.09	\$ 60.09	\$ 80.23	\$ 80.23	75%	75%
95165	PROF SVS SUPV/PROV ANTIG IMMUNO SI/MULTI	\$ 8.50	\$ 8.50	\$ 7.14	\$ 9.65	119%	88%
Internal Medicine							
99232	E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 69.99	\$ 69.99	\$ 69.69	\$ 69.69	100%	100%
99231	E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	\$ 38.05	\$ 38.05	\$ 37.84	\$ 37.84	101%	101%
99233	E/M IP SERV SUBSEQ HOSP CARE LEVEL 3	\$ 100.87	\$ 100.87	\$ 98.62	\$ 98.62	102%	102%
99213	E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 50.45	\$ 68.79	98%	101%
99214	E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 77.54	\$ 104.38	98%	98%
Pediatrics							
99213	E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 50.45	\$ 68.79	98%	101%
90461	IMMUN ADMIN <=AGE 18; ANY ROUTE,EA ADDL	\$ 11.88	\$ 11.88	N/A	N/A	N/A	N/A
90460	IMMUN ADMIN <=AGE 18; ANY ROUTE,1ST VACC	\$ 20.16	\$ 20.16	\$ 5.63	\$ 5.63	358%	358%
99214	E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 77.54	\$ 104.38	98%	98%
Specialist Care							
Cardiology							
93010	EKG INTERPRETATION REPORT ONLY	\$ 6.69	\$ 6.69	\$ 16.67	\$ 16.67	40%	40%
99232	E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 50.31	\$ 50.31	\$ 69.69	\$ 69.69	72%	72%
99214	E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 52.04	\$ 68.36	\$ 77.54	\$ 104.38	67%	65%
93000	EKG 12 LEAD	\$ 14.84	\$ 14.84	\$ 35.00	\$ 35.00	42%	42%
Dental							
D0120	PERIODIC ORAL EXAM	\$ 22.00	\$ 22.00	\$ 22.92	\$ 22.92	96%	96%
D1120	PROPHYLAXIS-CHILD	\$ 28.11	\$ 28.11	N/A	N/A		
D0272	BITEWING-TWO FILMS	\$ 18.94	\$ 18.94	\$ 15.63	\$ 15.63	121%	121%
Surgery							
99231	E/M IP SERV SUBSEQ HOSP CARE LEVEL 1	\$ 27.88	\$ 27.88	\$ 37.84	\$ 37.84	74%	74%
99232	E/M IP SERV SUBSEQ HOSP CARE LEVEL 2	\$ 50.31	\$ 50.31	\$ 69.69	\$ 69.69	72%	72%
99213	E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 33.65	\$ 45.37	\$ 50.45	\$ 68.79	67%	66%
99212	E/M OFFICE/OP SERV EST PATIENT LEVEL 2	\$ 17.11	\$ 27.05	\$ 25.47	\$ 41.52	67%	65%
99291	E/M CRIT CARE, FIRST 30-74 MINUTES	\$ 159.05	\$ 188.61	\$ 238.62	\$ 290.72		
Therapy							
92507	TRTMT SP/LANG/VOICE/COMM AND/OR AUDI IND	\$ 24.81	\$ 24.81	\$ 39.67	\$ 64.32	63%	39%
97530	THERAPEUTIC ACTIVITIES PT CONTACT 15 MIN	\$ 23.14	\$ 23.14	\$ 21.00	\$ 21.00	110%	110%
97110	THERAPEUTIC EXER 1 OR MORE AREAS EA 15 M	\$ 21.84	\$ 21.84	\$ 22.00	\$ 22.00	99%	99%
92508	TRTMT SP/LANG/VOICE/COMM AUDIO PROC GROU	\$ 11.60	\$ 11.60	\$ 15.77	\$ 38.00	74%	31%
97113	AQUATIC THERAPY WITH THERAPEUTIC EXERCIS	\$ 26.36	\$ 26.36	\$ 21.00	\$ 21.00	126%	126%
Behavioral Health							
H2017	PSYCHOSOCIAL REHABILITATION SVC	\$ 7.39	\$ 7.39	N/A	N/A		
H2014	SKILLS TRAINING AND DEVELOPMENT	\$ 7.82	\$ 7.82	N/A	N/A		
S9482	FAMILY STABILIZATION SVCS,PER 15 MINUTES	\$ 8.58	\$ 8.58	N/A	N/A		
T1027	FAMILY TRAINING AND COUNSELING FOR CHIL	\$ 25.21	\$ 25.21	N/A	N/A		
T1016	CASE MANAGEMENT, EACH 15 MINUTES	\$ 33.16	\$ 33.16	N/A	N/A		
OB/GYN							
99213	E/M OFFICE/OP SERV EST PATIENT LEVEL 3	\$ 49.69	\$ 69.40	\$ 50.45	\$ 68.79	98%	101%
81002	UA/DIP STK-TBLT W/O MICRO NONAUTO(SEE CO	\$ 3.12	\$ 3.12	\$ 6.00	\$ 6.00	52%	52%
81025	URINE PREGNANCY TST/VISUAL COLOR COMPARI	\$ 7.71	\$ 7.71	\$ 16.00	\$ 16.00	48%	48%
99214	E/M OFFICE/OP SERV EST PATIENT LEVEL 4	\$ 76.37	\$ 102.66	\$ 77.54	\$ 104.38	98%	98%
36415	COLLECTION OF VENOUS BLOOD/VENIPUNCTURE	\$ 2.50	\$ 2.50	\$ 5.21	\$ 5.21		
Home Health							
S9126	HOSPICE CARE IN THE HOME PER DIEM			N/A	N/A		
A9900	MISC SUPPLY,ACCESSORY &/OR SVC COMPONENT			N/A	N/A		
T1030	NURSING CARE IN HOME BY RN PER DIEM			N/A	N/A		
S9131	PHYSICAL THERAPY IN HOME, PER DIEM			N/A	N/A		
T2046	HOSPICE LTC, ROOM & BOARD; PER DIEM			N/A	N/A		

Appendix

A. Supplementary Data Tables

Table A1: Medicaid Enrollee Counts by Geographic Area

Table A2: Provider Counts by Geographic Area

Table A3: Provider-to-Enrollee Ratios by Geographic Area

Table A4: Provider and Enrollee Counts with Provider-to-Enrollee Ratios by Geographic Area

Table A5: Behavioral Health Facilities by Geographic Area

Table A1: Medicaid Fee-For-Service Enrollee Counts by Geographic Area
Fiscal Years 2013, 2014 and 2015

Enrollees	Geography	2013		2014		2015	
		N	%	N	%	N	%
Total Enrollees	Statewide	437,265	-	263,246	-	280,341	-
	Urban Areas	200,817	45.9	124,992	47.5	137,784	49.1
	Suburban Areas	111,321	25.5	64,851	24.6	67,556	24.1
	Rural Areas	120,995	27.7	71,669	27.2	73,601	26.3
Child Enrollees	Statewide	242,616	-	93,472	-	105,496	-
	Urban Areas	116,319	47.9	49,058	52.5	57,243	54.3
	Suburban Areas	60,384	24.9	21,191	22.7	23,442	22.2
	Rural Areas	63,621	26.2	22,300	23.9	24,123	22.9
Adult Enrollees	Statewide	130,744	-	105,461	-	112,175	-
	Urban Areas	59,577	45.6	50,414	47.8	55,211	49.2
	Suburban Areas	33,634	25.7	26,343	25.0	27,262	24.3
	Rural Areas	36,104	27.6	28,042	26.6	29,161	26.0
Female Enrollees of Child-Bearing Age	Statewide	98,511	-	68,185	-	66,781	-
	Urban Areas	46,075	46.8	33,796	49.6	34,080	51.0
	Suburban Areas	25,122	25.5	16,653	24.4	15,903	23.8
	Rural Areas	26,261	26.7	17,206	25.2	16,421	24.6

Urban/Suburban/Rural: These classifications reflect the Urban/Rural population of a specified geographic area using US Census 2010 data (most current urban/rural data available).

Notes: Due to address data limitations, some enrollees could not be assigned to a ZCTA in South Carolina; therefore the number of urban, suburban, and rural enrollees may not sum to the total number of enrollees statewide. Enrollee data represent full-benefit South Carolina Medicaid FFS enrollees (excluding Medicaid Prime members). Adult enrollees include those ages 19-64 years; child enrollees include those ages 0-18 years; female enrollees of child-bearing age include those ages 15-44 years. Data for each fiscal year are derived from a point-in-time file pulled as of June 30 for that fiscal year.

Data source: SC MMIS 2013, 2014 and 2015 recipient family file.

Table A2: Provider Counts by Geographic Area

Fiscal Years 2013, 2014 and 2015

Facility and Provider Type	Geography	2013		2014		2015	
		N	%	N	%	N	%
Primary Care Providers	Statewide	5,809	-	6,485	-	7,286	-
	Urban Areas	4,183.4	72.0	4,697.6	72.4	5,315.5	73.0
	Suburban Areas	1,110.1	19.1	1,217.6	18.8	1,337.4	18.4
	Rural Areas	515.5	8.9	569.8	8.8	633.1	8.7
Physician Specialists	Statewide	6,199	-	6,611	-	7,168	-
	Urban Areas	4,869.1	78.5	5,203.2	78.7	5,619.9	78.4
	Suburban Areas	1,057.0	17.1	1,116.9	16.9	1,201.8	16.8
	Rural Areas	272.9	4.4	290.9	4.4	346.4	4.8
Pediatric Subspecialists	Statewide	234	-	259	-	281	-
	Urban Areas	221.6	94.7	245.7	94.9	264.9	94.3
	Suburban Areas	9.2	3.9	9.7	3.7	10.6	3.8
	Rural Areas	3.3	1.4	3.6	1.4	5.5	2.0
Child Dental Care Providers	Statewide	1,220	-	1,309	-	1,387	-
	Urban Areas	836.9	68.6	903.1	69.0	960.0	69.2
	Suburban Areas	248.3	20.4	257.8	19.7	270.7	19.5
	Rural Areas	134.9	11.1	148.1	11.3	156.3	11.3
Adult Dental Care Providers	Statewide	1,157	-	1,239	-	1,311	-
	Urban Areas	779.8	67.4	838.8	67.7	889.7	67.9
	Suburban Areas	242.4	21.0	252.0	20.3	265.0	20.2
	Rural Areas	134.8	11.7	148.1	12.0	156.3	11.9
Behavioral Health Facilities*	Statewide	376	-	369	-	370	-
	Urban Areas	201	53.5	198	53.7	199	53.8
	Suburban Areas	117	31.1	115	31.2	115	31.1
	Rural Areas	58	15.4	56	15.2	56	15.1
Behavioral Health Providers	Statewide	1,358	-	1,644	-	1,908	-
	Urban Areas	1,051.5	77.4	1,270.3	77.3	1,481.6	77.7
	Suburban Areas	205.9	15.2	261.1	15.9	297.4	15.6
	Rural Areas	100.7	7.4	112.7	6.9	129.0	6.8
Obstetrics / Gynecology (Ob/Gyn) Providers	Statewide	720	-	750	-	789	-
	Urban Areas	577.5	80.2	597.6	79.7	630.1	79.9
	Suburban Areas	114.9	16.0	122.4	16.3	126.4	16.0
	Rural Areas	27.6	3.8	30.0	4.0	32.6	4.1
Home Health Providers**	Statewide	159	-	168	-	179	-
	Urban Areas	N/A	N/A	N/A	N/A	N/A	N/A
	Suburban Areas	N/A	N/A	N/A	N/A	N/A	N/A
	Rural Areas	N/A	N/A	N/A	N/A	N/A	N/A

Urban/Suburban/Rural: These classifications reflect the Urban/Rural population of a specified geographic area using US Census 2010 data (most current urban/rural data available).

Notes: Provider counts are weighted to reflect the fact that some providers practice in multiple locations across urban, suburban, and/or rural areas. Due to rounding, the total number of providers across all three urban-rural categories may not sum to the total number of providers statewide.

* Data was unavailable or not comparable for 2013 or 2014. Data from 2015 was substituted in these instances.

**Home Health Provider counts represent the location of Home Health offices. Data by geography is not calculated due to the nature of home health services.

Please see the attached metadata for definitions and sources.

Table A3: Provider to Enrollee Ratios by Geographic Area

Fiscal Years 2013, 2014 and 2015

Facility and Provider, and Enrollee Types	Geography	2013	2014	2015
Primary Care Providers to Total Enrollees	Statewide	13.3	24.6	26.0
	Urban Areas	20.8	37.6	38.6
	Suburban Areas	10.0	18.8	19.8
	Rural Areas	4.3	8.0	8.6
Physician Specialists to Total Enrollees	Statewide	14.2	25.1	25.6
	Urban Areas	24.2	41.6	40.8
	Suburban Areas	9.5	17.2	17.8
	Rural Areas	2.3	4.1	4.7
Pediatric Subspecialists to Child Enrollees	Statewide	1.0	2.8	2.7
	Urban Areas	1.9	5.0	4.6
	Suburban Areas	0.2	0.5	0.5
	Rural Areas	0.1	0.2	0.2
Child Dental Care Providers to Child Enrollees	Statewide	5.0	14.0	13.1
	Urban Areas	7.2	18.4	16.8
	Suburban Areas	4.1	12.2	11.5
	Rural Areas	2.1	6.6	6.5
Adult Dental Care Providers to Adult Enrollees	Statewide	8.8	11.7	11.7
	Urban Areas	13.1	16.6	16.1
	Suburban Areas	7.2	9.6	9.7
	Rural Areas	3.7	5.3	5.4
Behavioral Health Facilities* to Total Enrollees	Statewide	0.9	1.4	1.3
	Urban Areas	1.0	1.6	1.4
	Suburban Areas	1.1	1.8	1.7
	Rural Areas	0.5	0.8	0.8
Behavioral Health Providers to Total Enrollees	Statewide	3.1	6.2	6.8
	Urban Areas	5.2	10.2	10.8
	Suburban Areas	1.8	4.0	4.4
	Rural Areas	0.8	1.6	1.8
Obstetrics / Gynecology (Ob/Gyn) Providers to Female Enrollees of Child-Bearing Age	Statewide	7.3	11.0	11.8
	Urban Areas	12.5	17.7	18.5
	Suburban Areas	4.6	7.4	7.9
	Rural Areas	1.1	1.7	2.0

Urban/Suburban/Rural: These classifications reflect the Urban/Rural population of a specified geographic area using US Census 2010 data (most current urban/rural data available).

Notes: Because Home Health utilization is based on medical necessity, no enrollee population can be estimated, and thus no ratios are calculated. Adult enrollees include those ages 19-64 years; child enrollees include those ages 0-18 years; female enrollees of child-bearing age include those ages 15-44 years. Ratio is per 1,000 enrollees. Enrollee data source: SC MMIS 2013, 2014 and 2015 recipient family file.

* Data was unavailable or not comparable for 2013 or 2014. Data from 2015 was substituted in these instances.

Please see the attached metadata for facility and provider definitions and sources.

Created by the University of South Carolina, Institute for Families in Society,
Division of Medicaid Policy and Research, April 2016.



Table A4: Provider and Enrollee Counts with Provider to Enrollee Ratios by Geographic Area
Fiscal Years 2013, 2014 and 2015

Provider/Facility and Enrollee Types	Geography	2013			2014			2015		
		Providers	Enrollees	Ratio	Providers	Enrollees	Ratio	Providers	Enrollees	Ratio
Primary Care Providers to Total Enrollees	Statewide	5,809	437,265	13.3	6,485	263,246	24.6	7,286	280,341	26.0
	Urban Areas	4,183.4	200,817	20.8	4,697.6	124,992	37.6	5,315.5	137,784	38.6
	Suburban Areas	1,110.1	111,321	10.0	1,217.6	64,851	18.8	1,337.4	67,556	19.8
	Rural Areas	515.5	120,995	4.3	569.8	71,669	8.0	633.1	73,601	8.6
Physician Specialists to Total Enrollees	Statewide	6,199	437,265	14.2	6,611	263,246	25.1	7,168	280,341	25.6
	Urban Areas	4,869.1	200,817	24.2	5,203.2	124,992	41.6	5,619.9	137,784	40.8
	Suburban Areas	1,057.0	111,321	9.5	1,116.9	64,851	17.2	1,201.8	67,556	17.8
	Rural Areas	272.9	120,995	2.3	290.9	71,669	4.1	346.4	73,601	4.7
Pediatric Subspecialists to Child Enrollees	Statewide	234	242,616	1.0	259	93,472	2.8	281	105,496	2.7
	Urban Areas	221.6	116,319	1.9	245.7	49,058	5.0	264.9	57,243	4.6
	Suburban Areas	9.2	60,384	0.2	9.7	21,191	0.5	10.6	23,442	0.5
	Rural Areas	3.3	63,621	0.1	3.6	22,300	0.2	5.5	24,123	0.2
Child Dental Care Providers to Child Enrollees	Statewide	1,220	242,616	5.0	1,309	93,472	14.0	1,387	105,496	13.1
	Urban Areas	836.9	116,319	7.2	903.1	49,058	18.4	960.0	57,243	16.8
	Suburban Areas	248.3	60,384	4.1	257.8	21,191	12.2	270.7	23,442	11.5
	Rural Areas	134.9	63,621	2.1	148.1	22,300	6.6	156.3	24,123	6.5
Adult Dental Care Providers to Adult Enrollees	Statewide	1,157	130,744	8.8	1,239	105,461	11.7	1,311	112,175	11.7
	Urban Areas	779.8	59,577	13.1	838.8	50,414	16.6	889.7	55,211	16.1
	Suburban Areas	242.4	33,634	7.2	252.0	26,343	9.6	265.0	27,262	9.7
	Rural Areas	134.8	36,104	3.7	148.1	28,042	5.3	156.3	29,161	5.4
Behavioral Health Facilities* to Total Enrollees	Statewide	376	437,265	0.9	369	263,246	1.4	370	280,341	1.3
	Urban Areas	201	200,817	1.0	198	124,992	1.6	199	137,784	1.4
	Suburban Areas	117	111,321	1.1	115	64,851	1.8	115	67,556	1.7
	Rural Areas	58	120,995	0.5	56	71,669	0.8	56	73,601	0.8
Behavioral Health Providers to Total Enrollees	Statewide	1,358	437,265	3.1	1,644	263,246	6.2	1,908	280,341	6.8
	Urban Areas	1,051.5	200,817	5.2	1,270.3	124,992	10.2	1,481.6	137,784	10.8
	Suburban Areas	205.9	111,321	1.8	261.1	64,851	4.0	297.4	67,556	4.4
	Rural Areas	100.7	120,995	0.8	112.7	71,669	1.6	129.0	73,601	1.8
Obstetrics / Gynecology (Ob/Gyn) Providers to Female Enrollees of Child-Bearing Age	Statewide	720	98,511	7.3	750	68,185	11.0	789	66,781	11.8
	Urban Areas	577.5	46,075	12.5	597.6	33,796	17.7	630.1	34,080	18.5
	Suburban Areas	114.9	25,122	4.6	122.4	16,653	7.4	126.4	15,903	7.9
	Rural Areas	27.6	26,261	1.1	30.0	17,206	1.7	32.6	16,421	2.0
Home Health Providers**	Statewide	159	N/A	N/A	168	N/A	N/A	179	N/A	N/A
	Urban Areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Suburban Areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Rural Areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Urban/Suburban/Rural: These classifications reflect the Urban/Rural population of a specified geographic area using US Census 2010 data (most current urban/rural data available).

Notes: Provider counts are weighted to reflect the fact that some providers practice in multiple locations across urban, suburban, and/or rural areas. Due to rounding, the total number of providers across all three Urban-Rural categories may not sum to the total number of providers statewide. Some enrollees could not be assigned to a ZCTA in South Carolina; therefore the number of urban, suburban, and rural enrollees may not sum to the total number of enrollees statewide. Enrollee data represent full-benefit South Carolina Medicaid FFS enrollees (excluding Medicaid Prime members). Adult enrollees include those ages 19-64 years; child enrollees include those ages 0-18 years; female enrollees of child-bearing age include those ages 15-44 years. Data for each fiscal year are derived from a point-in-time file pulled as of June 30 for that fiscal year. Ratio is per 1,000 enrollees. **Enrollee data source:** SC MMIS 2013, 2014 and 2015 recipient family file.

* Data was unavailable or not comparable for 2013 or 2014. Data from 2015 was substituted in these instances.

** Home Health Provider counts represent the location of Home Health offices. Because Home Health utilization is based on medical necessity, no enrollee population can be estimated, and thus no ratios are calculated. Please see the attached metadata for facility and provider definitions and sources.

Table A5: Behavioral Health Facilities by Geographic Area
Fiscal Years 2013, 2014 and 2015

Facility Type	Geography	2013		2014		2015	
		N	%	N	%	N	%
Department of Alcohol and Other Drug Abuse Services (DAODAS) Facilities	Statewide	46	-	46	-	46	-
	Urban Areas	13	28.3	13	28.3	13	28.3
	Suburban Areas	21	45.7	21	45.7	21	45.7
	Rural Areas	12	26.1	12	26.1	12	26.1
Department of Mental Health (DMH) Psychiatric Hospitals	Statewide	4	-	4	-	4	-
	Urban Areas	4	100.0	4	100.0	4	100.0
	Suburban Areas	0	0.0	0	0.0	0	0.0
	Rural Areas	0	0.0	0	0.0	0	0.0
Department of Mental Health (DMH) Facilities*	Statewide	162	-	162	-	162	-
	Urban Areas	102	63.0	102	63.0	102	63.0
	Suburban Areas	46	28.4	46	28.4	46	28.4
	Rural Areas	14	8.6	14	8.6	14	8.6
Inpatient Facilities that Treat Individuals for Psychoactive Substance Abuse or Dependence (DAODAS)	Statewide	14	-	14	-	14	-
	Urban Areas	11	78.6	11	78.6	11	78.6
	Suburban Areas	2	14.3	2	14.3	2	14.3
	Rural Areas	1	7.1	1	7.1	1	7.1
Outpatient Facilities that Treat Individuals for Psychoactive Substance Abuse or Dependence (DAODAS)	Statewide	75	-	72	-	73	-
	Urban Areas	44	58.7	43	59.7	44	60.3
	Suburban Areas	21	28.0	20	27.8	20	27.4
	Rural Areas	10	13.3	9	12.5	9	12.3
Intermediate Care Facilities for Persons with Intellectual Disability (15 Beds or Less, DDSN)	Statewide	67	-	63	-	63	-
	Urban Areas	24	35.8	22	34.9	22	34.9
	Suburban Areas	22	32.8	21	33.3	21	33.3
	Rural Areas	21	31.3	20	31.7	20	31.7
Intermediate Care Facilities for Persons with Intellectual Disability (16 Beds or More, DDSN)	Statewide	8	-	8	-	8	-
	Urban Areas	3	37.5	3	37.5	3	37.5
	Suburban Areas	5	62.5	5	62.5	5	62.5
	Rural Areas	0	0.0	0	0.0	0	0.0

* **Note:** Data was unavailable or not comparable for 2013 or 2014. Data from 2015 was substituted in these instances.

Data sources:

Department of Alcohol and Other Drug Abuse Services (DAODAS) Facilities : SC DAODAS, <http://www.daodas.state.sc.us/LocalResourceSearch.asp>, accessed November 2015, retrieved from November 2014 and November 2013.
Department of Mental Health (DMH) Psychiatric Hospitals : SC DMH, Inpatient Hospitals, http://www.state.sc.us/dmh/center_inpatient.htm, accessed November 2015; SC DHEC, <http://www.scdhec.gov/Health/docs/hrhptl-cty.pdf>, accessed July 2015 and November 2014, retrieved from June 2013.
Department of Mental Health (DMH) Facilities : SC DMH, Inpatient Centers, http://www.state.sc.us/dmh/center_inpatient.htm, accessed November 2015.
Inpatient and Outpatient Facilities that Treat Individuals for Psychoactive Substance Abuse or Dependence : SC DHEC, <http://www.scdhec.gov/Health/Docs/LicensedFacilities/hrtp.pdf>, accessed July 2015 and November 2014, retrieved from June 2013. These facilities are associated with the Department of Alcohol and Other Drug Abuse Services (DAODAS).
Intermediate Care Facilities for Persons with Intellectual Disability: SC DHEC, <http://www.scdhec.gov/Health/Docs/LicensedFacilities/hmr15.pdf> and <http://www.scdhec.gov/Health/Docs/LicensedFacilities/hmr16.pdf>, accessed July 2015 and November 2014, retrieved from June 2013. These facilities are associated with the Department of Disabilities and Special Needs (DDSN).

B. Geo-Locating South Carolina Medicaid Enrollees and Providers

Evaluating geographic access to healthcare for Medicaid participants requires that Medicaid enrollees and healthcare providers be spatially located. Using a geographic information system (GIS) and Structured Query Language (SQL) based automation routines, MPR cleans, standardizes, and geocodes (geo-locates) enrollee and provider addresses.

Processing Addresses

Enrollees

All potential addresses for each Medicaid enrollee (mailing address 1, mailing address 2, residential address 1, and residential address 2) contained in South Carolina Medicaid Management Information System (MMIS) enrollee files are cleaned and standardized using address correction software. This software corrects misspellings, standardizes address extension abbreviations (e.g., St., Rd., Ln., Ave.), supplies missing address directional information (e.g., N. Main, S. Elm), and rectifies city/ZIP Code errors.

All raw and cleaned/standardized addresses are run subsequently through MPR's composite geocoder. A geocoder (address locator) is *"a dataset that stores the address attributes, associated indexes, and rules that define the process for translating nonspatial descriptions of places, such as street addresses, into spatial data that can be displayed as features on a map."* The MPR composite geocoder includes spatial reference data from multiple data sources, each representing a different level of geo-positional accuracy. Address point data are most accurate; ZIP Code centroid data are least accurate. Using this composite geocoder, MPR can geo-locate more than 99% of all Medicaid enrollees. More than 80% of geocoded enrollees are spatially located at address points, which represent the highest level of positional accuracy.

Total Medicaid Enrollees Geocoded	%
Address Points	> 80%
SC State-Generated Centerlines	> 10%
TeleAtlas Centerlines, 2007	< 2%
TeleAtlas Centerlines, 2003	< 2%
ESRI ZIP Code	< 3%

For each Medicaid enrollee, the single "best address" (address geocoded with greatest accuracy) is selected for geographic access-to-care analysis. Medicaid enrollees are excluded from analyses only if they are geocoded out-of-state; if address information cannot be matched to address point, street centerline or ZIP Code centroid reference data sets; if address or key demographic data (age, sex,

race/ethnicity) are missing; or if geocoding results cannot be linked to the road network (i.e., geocoding offset error occurs). In combination, these exclusions typically account for less than 1% of total Medicaid participants.

This complex process utilizes both GIS- and SQL-based automation routines. All data is contained inside a SQL database with connections to address correction and GIS software. The final address dataset (representing the single best address for each Medicaid enrollee) is migrated to a spatially enabled GIS network database for geographic access-to-care analysis.

Providers

Similarly, address data for healthcare providers directly enrolled with the South Carolina Medicaid system are cleaned and standardized using address correction software. Raw and cleaned/standardized provider addresses then are geo-located using the MPR composite geocoder.

The final provider dataset (representing the single best address for each healthcare provider) is migrated to a spatially enabled GIS network database for geographic access-to-care analysis.

C. Measuring Access to Care

MPR calculates the number of providers available to the FFS Medicaid population as well as provider-to-enrollee ratios for the state as a whole and for urban, suburban, and rural areas. Healthcare utilization is evaluated using Healthcare Effectiveness Data and Information Set (HEDIS) quality measures. Routine monitoring permits the evaluation of access and utilization trends over time.

Availability of Providers

MPR utilizes the MMIS provider directory to determine the number of physicians available to the FFS Medicaid population.

Provider-to-Enrollee Ratio

Healthcare provider-to-enrollee ratios are defined as the number of Medicaid healthcare providers per 1,000 Medicaid enrollees. Because practitioners can deliver healthcare at multiple locations, provider-specific weights are used to approximate the proportion of provider care delivered at each site. In the absence of more specific data, a provider's time is assumed to be divided equally among all healthcare delivery locations. Thus, a provider's weight equals $1/\text{number of practice locations}$. The proportion of a provider's time per area equals the number of practice locations per area multiplied by the provider-specific weight. Using this weighting scheme, a provider with 4 practice locations--all in the same area --would be counted as $4 * .25$ or 1 provider in that area; a provider with 4 practice sites--all in different areas--would be counted as $1 * .25$ or .25 providers in each area. The total sum of weighted

provider presence across areas equals the total number of providers (i.e., every provider is counted once and only once).

D. Metadata

(See next page)

Metadata

Geographic Areas

Data Element	Source	Notes & Definitions
South Carolina ZIP Code Tabulation Areas (ZCTAs)	US Census Bureau, Census 2010.	ZIP Code Tabulation Areas (ZCTAs) are approximate area representations of U.S. Postal Service (USPS) five-digit ZIP Code service areas that the Census Bureau creates using whole blocks to present statistical data from censuses and surveys. The Census Bureau defines ZCTAs by allocating each block that contains addresses to a single ZCTA, usually to the ZCTA that reflects the most frequently occurring ZIP Code for the addresses within that tabulation block. Blocks that do not contain addresses but are completely surrounded by a single ZCTA (enclaves) are assigned to the surrounding ZCTA; those surrounded by multiple ZCTAs will be added to a single ZCTA based on limited buffering performed between multiple ZCTAs. The Census Bureau identifies five-digit ZCTAs using a five-character numeric code that represents the most frequently occurring USPS ZIP Code within that ZCTA. Multiple ZIP Codes may be associated with a single ZCTA. For example, South Carolina ZIP Codes 29401 and 29402 both are included in ZCTA 29401.
Urban/Suburban/Rural Class	USC IFS MPR, 2015; US Census Bureau, Census 2010.	ZCTA-level urban/rural class breaks were established to 1) maximize spatial correlation with a county-level urban/rural classification system based on Metropolitan/Micropolitan Statistical Area definitions, and 2) highlight urban/suburban/rural variation within counties. Classifications are based on the percentage of the ZCTA's population that is Urban as per the Census 2010. Urban Areas are those ZCTAs with an urban population comprising more than 72.5% of the total population. Suburban Areas are those ZCTAs with an Urban population comprising between 72.5 and 43.0% of the total population. Rural Areas are those ZCTAs with an urban population comprising less than 43.0% of the total population.

Fee-For-Service (FFS) Enrollees

Data Element	Source	Notes & Definitions
Fee-For-Service Enrollees (Full benefits only)	SC MMIS 2013, 2014 and 2015 recipient family file.	Enrollee data represent full-benefit South Carolina Medicaid FFS enrollees (excluding Medicaid Prime members). Child enrollees include those ages 0-18 years. Non-elderly adult enrollees include those ages 19-64. Female enrollees of child-bearing age include those ages 15-44 years. Data for each fiscal year are derived from a point-in-time file pulled as of June 30 for that fiscal year.

Facilities and Providers

Data Element	Source	Notes & Definitions
Behavioral Health Facilities	SC DAODAS, accessed November 2015, retrieved from November 2014 and November 2013; SC DMH Inpatient Hospitals, accessed November 2015, July 2015 and November 2015, retrieved from June 2013; SC DMH Inpatient Centers, accessed November 2015; SC DHEC, accessed July 2015 and November 2014, retrieved from June 2013.	Includes DAODAS Facilities, DMH Psychiatric Hospitals, DMH Facilities, Inpatient Facilities that Treat Individuals for Psychoactive Substance Abuse or Dependence, Outpatient Facilities that Treat Individuals for Psychoactive Substance Abuse or Dependence, Intermediate Care Facilities for Persons with Intellectual Disability (15 Beds or Less, DDSN) and Intermediate Care Facilities for Persons with Intellectual Disability (16 Beds or More, DDSN).
Behavioral Health Providers	SC MMIS provider file FY2013, FY2014, and FY2015.	Specialties include: Therapist/Multiple Specialty Group (01), Private Mental Health (20), SC Department of Mental Health (28), psychiatry (48), psychiatry – child (49), psychologist (82), social worker (83), alcohol & substance abuse (90), mental retardation (91), SC Continuum of Care (92), developmental rehabilitation (95), licensed marriage and family therapist (LT), licensed master social worker (LW), licensed professional counselor (PC), and licensed independent social worker (SW).

Metadata

Dental Care Providers for Children	SC MMIS provider file FY2013, FY2014, and FY2015.	Provider types include: Dentist, Individual (30) and Dentist, Group (31). Specialties include: Dentist (08), Orthodontics (35), Pedodontics (43), surgery – oral (dental only) (66), multiple specialty group (78), Dental – endodontist (EN), Dental – periodontist (PE)
Dental Care Providers for Adults	SC MMIS provider file FY2013, FY2014, and FY2015.	Provider types include: Dentist, Individual (30) and Dentist, Group (31). Specialties include: Dentist (08), Orthodontics (35), surgery – oral (dental only) (66), multiple specialty group (78), Dental – endodontist (EN), Dental – periodontist (PE)
Home Health Providers	SC MMIS provider file FY2013, FY2014, and FY2015.	Provider type includes: Home Health (60).
Obstetrics / Gynecology (Ob/Gyn) Providers	SC MMIS provider file FY2013, FY2014, and FY2015.	Specialties include: Midwife (06), gynecology (16), obstetrics (26), and obstetrics and gynecology (27).
Primary Care Providers	SC MMIS provider file FY2013, FY2014, and FY2015.	Specialties include: Family Practice (12), General Practice (14), Gynecology (16), Internal Medicine (19), Obstetrics (26), Obstetrics and Gynecology (27), Pediatrics (40), Federally Qualified Health Clinics - FQHC (50), Nurse Practitioner & Physician Assistant (86), Rural Health Clinics - RHC (97).
Pediatric Subspecialists	SC MMIS provider file FY2013, FY2014, and FY2015.	Specialties include: Pediatric Subspecialist (AA), pediatrics - allergy (41), pediatrics - cardiology (42) and surgery - pediatric (68).
Physician Specialists	SC MMIS provider file FY2013, FY2014, and FY2015.	Specialties include: Allergy and immunology (2), anesthesiology(3), cardiovascular diseases (5), chiropractic (7), dermatology (9), emergency medicine (10), endocrinology and metab (11), gastroenterology (13), geriatrics (15), hematology (17), infectious diseases (18), nephrology/ESRD (21), neurology (22), nuclear medicine (24), occupational medicine (29), oncology (30), ophthalmology (31), osteopathy (32), optician (33), optometry (34), otorhinolaryngology (36), hospital pathology (37), pathology (38), pathology – clinical (39), physical medicine & rehabilitation (45), podiatry (47), pulmonary medicine (52), neonatology (53), radiology (54), radiology – diagnostic (55), radiology – therapeutic (56), rheumatology (57), surgery – cardiovascular (61), surgery – colon and rectal (62), surgery – general (63), surgery – neurological (65), surgery – orthopedic (67), surgery – plastic (69), surgery – thoracic (70), and surgery – urological (71).

General Population Estimates

Data Element	Source	Notes & Definitions
General Population Estimates	US Census Bureau, ACS 5-Year Estimates 2008-2012, 2009-2013, 2010-2014; ACS 2015 PEPANNRES.	General population estimates for fiscal years 2012 - 2014 were provided by the ACS 5-year estimates B01001 table (Age by Sex) by ZCTA. Due to urban, suburban and rural classifications being calculated for each ZCTA, these estimates were summed to total urban, suburban, and rural classifications. Population estimates for fiscal year 2015 were provided by the ACS PEPANNRES (Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015), because ACS 5-year estimates for 2011-2015 are not yet available.