

**An Analysis of the Demand  
for Primary Care Practitioners and Specialty Physicians  
in the Medical Service Area of Tyler Holmes Memorial  
Hospital in Montgomery County, Mississippi**



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August 2011

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in Montgomery County, Mississippi**

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**Introduction**

This report will examine the need for primary care practitioners and specialty physicians in the medical service of Tyler Holmes Memorial Hospital in Montgomery County, Mississippi. Primary care practitioners include family practice or general medicine physicians, internal medicine physicians, OB/GYN, pediatricians and mid-level primary care practitioners. Specialty physicians included are allergists, cardiologists, gastroenterologists, oncologists, nephrologists, neurologists, pulmonologists, rheumatologists, and surgeons performing general surgeries, and surgeons performing specialty surgeries in the areas of ENT, ophthalmology, orthopedics, and urology. Specifically, the study will:

1. Illustrate the population of the medical service area (MSA) of Tyler Holmes Hospital;
2. Estimate total office visits and primary care physician office visits in the MSA of Tyler Holmes Memorial Hospital;
3. Estimate the total demand for primary care practitioners in the MSA of Tyler Holmes Memorial Hospital based on local usage rates; and
4. Estimate the need for selected specialty physicians in the MSA.

No recommendations will be made. The information included in this report is designed to assist local decision-makers in assessing the need and potential for primary care practitioner services and specialty physician services.

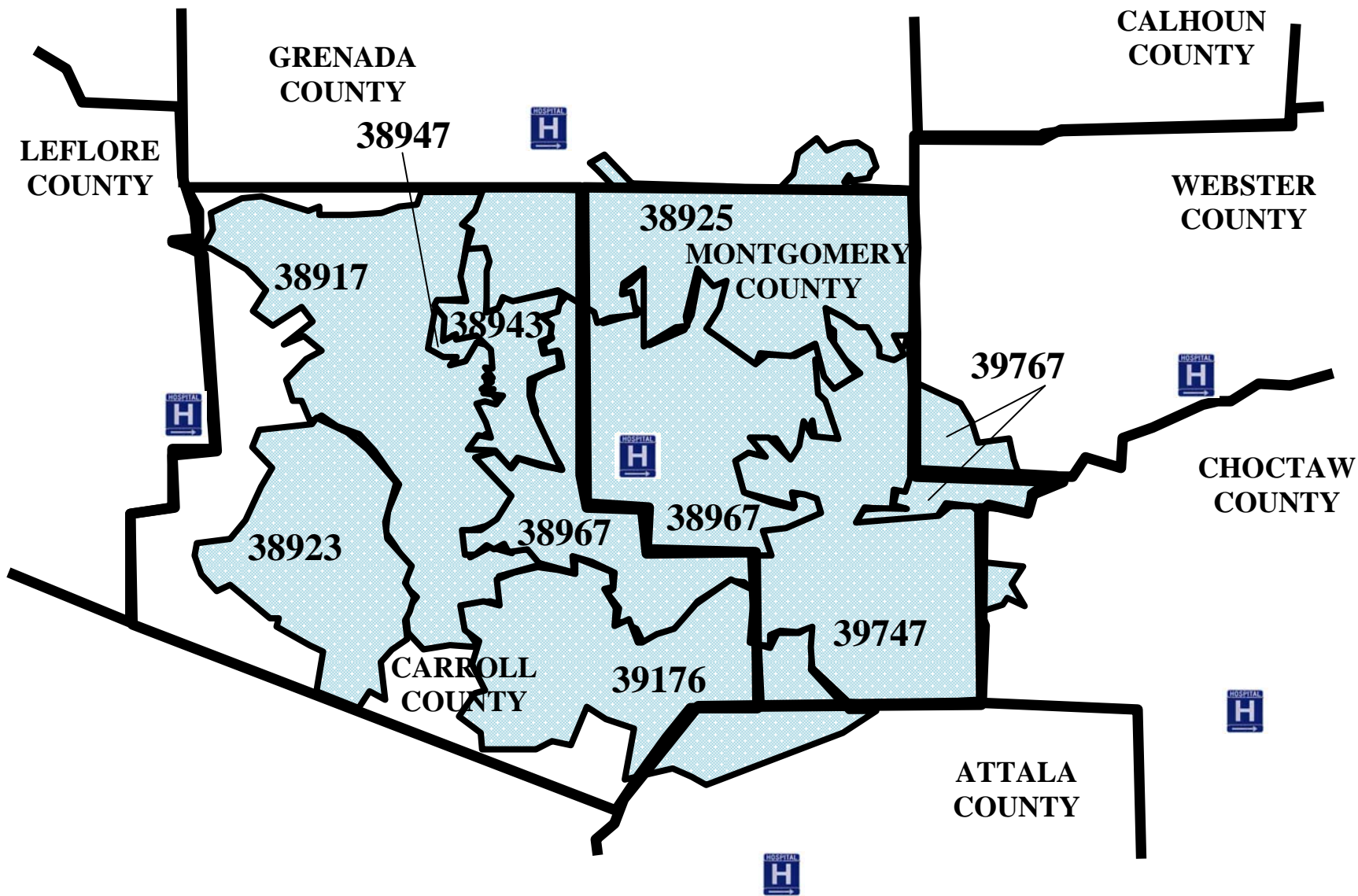
## **Medical Service Area of Tyler Holmes Memorial Hospital**

The MSA of Tyler Holmes Memorial Hospital includes nine zip code areas: 38917 Carrollton, 38923 Coila, 38925 Duck Hill, 38943 McCarley, 38947 North Carrollton, 38967 Winona, 39176 Vaiden, 39747 Kilmichael and 39767 Stewart. **Figure 1** illustrates the zip code areas utilized in this study. For the purposes of this study, the assumption is that approximately 80 percent of the MSA population utilizes primary health care services in the MSA of Tyler Holmes Memorial Hospital.

Census population by zip code for 2009 was not available. **Table 1** presents the estimated 2009 population by age and gender for each zip code in the Tyler Holmes MSA from the Community Sourcebook of Zip Code Demographics. The Zip Code estimates for North Carrollton (38947) were unavailable. Zip Code boundaries vary by source resulting in slightly different estimates. The population for North Carrollton was included in the estimate for McCarley (38943). The total population for the primary service area was 21,487.

**Table 2** presents the estimated number of annual physician office visits by age and gender. For instance, for males under age fifteen, the average number of annual physician office visits is 2.5 visits per year. These data were from the National Ambulatory Health Care Survey: 2008 Summary Tables from the U. S. Department of Health and Human Services.

**Table 3** presents the number of annual physician office visits generated in the MSA. These office visits were estimated by multiplying the 2009 estimated population by age and gender groups by the estimated number of annual physician office visits. Of these total office visits, recent data indicate that 60.6 percent of total physician office visits will be made to practitioners active in primary patient care while the remainder will be made to specialists [3].



**Figure 2**  
**Medical Service Area of Tyler Holmes Memorial Hospital**  
**and Surrounding Hospitals**

**Table 1**  
**Tyler Holmes Memorial Hospital Primary Medical Service Area Population by Zip Codes, 2009**

| Age   | <u>38917</u> |            | <u>38923</u> |           | <u>38925</u> |           | <u>38943</u> |           | <u>38947</u> |        |  |
|-------|--------------|------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|--------|--|
|       | Male         | Female     | Male         | Female    | Male         | Female    | Male         | Female    | Male         | Female |  |
| < 15  | 309          | 281        | 155          | 164       | 256          | 277       | 79           | 81        | NA           | NA     |  |
| 15-24 | 264          | 240        | 96           | 102       | 143          | 154       | 57           | 59        | NA           | NA     |  |
| 25-44 | 460          | 417        | 189          | 200       | 298          | 321       | 128          | 132       | NA           | NA     |  |
| 45-64 | 521          | 474        | 234          | 246       | 334          | 360       | 164          | 168       | NA           | NA     |  |
| 65-74 | 111          | 101        | 54           | 57        | 70           | 75        | 36           | 37        | NA           | NA     |  |
| 75+   | <u>144</u>   | <u>131</u> | <u>68</u>    | <u>71</u> | <u>90</u>    | <u>97</u> | <u>46</u>    | <u>47</u> | NA           | NA     |  |
| Total | 1,808        | 1,643      | 795          | 839       | 1,190        | 1,284     | 509          | 523       | NA           | NA     |  |

| Age   | <u>38967</u> |            | <u>39176</u> |            | <u>39747</u> |            | <u>39767</u> |           | Primary MSA |              | 2009<br>Total |
|-------|--------------|------------|--------------|------------|--------------|------------|--------------|-----------|-------------|--------------|---------------|
|       | Male         | Female     | Male         | Female     | Male         | Female     | Male         | Female    | Male        | Female       |               |
| < 15  | 653          | 779        | 233          | 231        | 258          | 266        | 56           | 55        | 1,999       | 2,134        | 4,133         |
| 15-24 | 464          | 554        | 185          | 184        | 142          | 147        | 31           | 31        | 1,382       | 1,471        | 2,853         |
| 25-44 | 770          | 919        | 324          | 322        | 289          | 299        | 64           | 63        | 2,522       | 2,673        | 5,195         |
| 45-64 | 850          | 1,014      | 345          | 342        | 338          | 349        | 77           | 76        | 2,863       | 3,029        | 5,892         |
| 65-74 | 246          | 293        | 87           | 86         | 91           | 93         | 19           | 19        | 711         | 759          | 1,470         |
| 75+   | <u>338</u>   | <u>403</u> | <u>112</u>   | <u>110</u> | <u>121</u>   | <u>124</u> | <u>24</u>    | <u>24</u> | <u>940</u>  | <u>1,005</u> | <u>1,945</u>  |
| Total | 3,320        | 3,962      | 1,286        | 1,275      | 1,238        | 1,278      | 270          | 267       | 10,416      | 11,071       | 21,487        |

SOURCE: Community Sourcebook of Zip Code Demographics, 23rd Edition, 2009, ESRI.

**Table 2**  
**Annual Physician Office Visits by Age Group**

| Age Group | Male Visit Rate <sup>1</sup> | Female Visit Rate <sup>1</sup> |
|-----------|------------------------------|--------------------------------|
| < 15      | 2.5                          | 2.3                            |
| 15-24     | 1.1                          | 2.5                            |
| 25-44     | 1.5                          | 3.3                            |
| 45-64     | 3.1                          | 4.2                            |
| 65-74     | 6.0                          | 6.7                            |
| 75+       | 7.9                          | 7.3                            |

<sup>1</sup>Source: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2008 Summary Tables.

Using the office visit data presented in **Table 2**, the MSA will generate 73,412 total annual physician office visits. The local primary care physician office visits were calculated based on the 60.6 percent of total office visits to primary care physicians for a total of 44,488 primary care office visits ( $73,412 \times 0.606 = 44,488$ ).

**Table 3**  
**Annual Primary Care Physician Office Visits Generated in Physician Medical Service Areas of Tyler Holmes Memorial Hospital (Based on 100 Percent Utilization)**

| Age   | Male                         |                         |        | Female                       |                         |        | Total Visits  |
|---|------------------------------|-------------------------|--------|------------------------------|-------------------------|--------|---------------|
|   | 2009 Population <sup>1</sup> | Visit Rate <sup>2</sup> | Visits | 2009 Population <sup>1</sup> | Visit Rate <sup>2</sup> | Visits |               |
| < 15  | 1,999                        | 2.5                     | 4,998  | 2,134                        | 2.3                     | 4,908  | 9,906         |
| 15-24   | 1,382                        | 1.1                     | 1,520  | 1,471                        | 2.5                     | 3,678  | 5,198         |
| 25-44   | 2,522                        | 1.5                     | 3,783  | 2,673                        | 3.3                     | 8,821  | 12,604        |
| 45-64   | 2,863                        | 3.1                     | 8,875  | 3,029                        | 4.2                     | 12,722 | 21,597        |
| 65-74   | 711                          | 6.0                     | 4,263  | 759                          | 6.7                     | 5,085  | 9,348         |
| 75+   | 940                          | 7.9                     | 7,422  | 1,005                        | 7.3                     | 7,337  | 14,759        |
| Total   | 10,416                       |                         | 30,861 | 11,071                       |                         | 42,551 | 73,412        |
| <b>Local Primary Care Office Visits Per Year (60.6 percent of 73,412)</b> |                              |                         |        |                              |                         |        | <b>44,488</b> |

<sup>1</sup> SOURCE: ESRI Press, Community Sourcebook of Zip Code Demographics, 23<sup>rd</sup> Edition, 2009.

<sup>2</sup>Source: Annual visit rates by gender and age groups, U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2008 Summary Tables.

The total number of primary care office visits given various usage rates is presented in **Table 4** for the MSA. If the residents in the MSA exercise an 80 percent usage rate of primary care practitioners, the estimated annual primary care office visits would be 35,590.

**Table 4**  
**Primary Care Physician Office Visits Given Usage**  
**by Local Residents in the Medical Service Area of Tyler Holmes Memorial Hospital**

|                              | Usage Levels |        |               |        |        |        |        |
|------------------------------|--------------|--------|---------------|--------|--------|--------|--------|
|                              | 70%          | 75%    | <b>80%</b>    | 85%    | 90%    | 95%    | 100%   |
| <i>Medical Service Area</i>  |              |        |               |        |        |        |        |
| Office Visits by Usage Level | 31,142       | 33,366 | <b>35,590</b> | 37,815 | 40,039 | 42,264 | 44,488 |

For example, a 80% usage level in the primary MSA results in **35,590** total primary care physician office visits for an estimated **7.1 Total Primary Care Physicians\***

\* Based on 5,000 average annual primary care office visits per primary care physician practice.

The national average for the number of annual office visits to each primary care physician is 5,000 [3]. Utilizing this average, the MSA needs an estimated 7.1 primary care physicians, based on the 80 percent usage rate for the MSA. Mid-level practitioners could be utilized to replace 0.5 primary care physicians to cover 2,500 primary care office visits each.

As presented in **Table 5**, the Tyler Holmes Memorial Hospital MSA currently has two full-time primary care physicians, and two mid-level professionals (nurse practitioners) for a total of 3.0 FTE physicians. Again, mid-level practitioners typically provide care to approximately one-half the number of office visits as a primary physician. Based on these estimates, the number of visits generated could support an additional 4.1 physician FTEs



**Table 5**  
**List of Physicians and Mid-Level Practitioners in Medical Service Area**  
**Of Tyler Holmes Memorial General Hospital**

| <b>Physician Name</b>                | <b>Type of Practice</b> | <b>Frequency</b> | <b>FTEs</b>        | <b>Physician FTEs</b> |
|--------------------------------------|-------------------------|------------------|--------------------|-----------------------|
| <i><b>Full-Time Physicians</b></i>   |                         |                  |                    |                       |
| Dr. Keith Rushing                    | Family Practice         | 40 hrs/wk        | 1.00               | 1.00                  |
| Dr. Dwayne Gammel                    | Family Practice         | 40 hrs/wk        | 1.00               | 1.00                  |
| <b>Full-Time Nurse Practitioners</b> |                         |                  |                    |                       |
| Debora Ware, CFNP                    | Family Practice         | 40 hrs/wk        | 1.00               | 0.50                  |
| Latina Butts, CFNP                   | Family Practice         | 40 hrs/wk        | 1.00               | 0.50                  |
| <b>Total FTEs</b>                    |                         |                  | <b><u>4.00</u></b> | <b><u>3.00</u></b>    |

SOURCE: Tyler Holmes Memorial Hospital Physician Roster (August 2011).

Users of the data will have to choose the most appropriate utilization rates and estimate primary care practitioner needs based on local knowledge. Lower usage levels would indicate that fewer practitioners could be supported. All assumptions and local conditions, including the actual utilization levels must be taken into consideration by local decision-makers before determining if additional practitioners could successfully locate in the MSA of Tyler Holmes Memorial Hospital. Again, primary care practitioners include family practice and general medicine physicians, internal medicine physicians, OB/GYN, pediatricians and mid-level primary care practitioners. All of these types of practitioners should be considered when analyzing the primary care practitioner needs in the MSA.

## Estimating Need for Specialty Physicians

To estimate the need for specialty physicians, a different methodology was utilized. From the literature, averages of baseline populations were determined that represented the level of population necessary to support a specialty physician in each respective specialty [4, 5]. Based on these average population-to-specialty physician ratios, an estimate of need was determined for eight medical specialties and five surgical specialties.

**Table 6** presents the ratio between the baseline population and the support of FTEs of specialty physicians given each particular specialty, along with the equivalency of FTEs to

**Table 6**  
**Specialty Physician Need in Medical Service Area of Tyler Holmes Memorial Hospital**  
**(Based on 80% MSA)**

| Specialty Type              | Population to Specialty<br>Physician Ratios | Specialty Physician<br>FTEs | Equivalent<br>Workdays Per Week |
|-----------------------------|---|-----------------------------|---------------------------------|
| <b>Medical Specialties</b>  |   |                             |                                 |
| Allergy                     | 93,782                                      | 0.18                        | 0.9                             |
| Cardiology                  | 25,501                                      | 0.67                        | 3.4                             |
| Gastroenterology            | 41,111                                      | 0.42                        | 2.1                             |
| Oncology                    | 46,667                                      | 0.37                        | 1.8                             |
| Nephrology                  | 65,333                                      | 0.26                        | 1.3                             |
| Neurology                   | 40,667                                      | 0.42                        | 2.1                             |
| Pulmonary                   | 58,589                                      | 0.29                        | 1.5                             |
| Rheumatology                | 85,557                                      | 0.20                        | 1.0                             |
| <b>Surgical Specialties</b> |   |                             |                                 |
| ENT                         | 35,370                                      | 0.49                        | 2.4                             |
| General Surgery             | 12,834                                      | 1.34                        | 6.7                             |
| Ophthalmology               | 26,638                                      | 0.65                        | 3.2                             |
| Orthopedic                  | 16,802                                      | 1.02                        | 5.1                             |
| Urology                     | 33,974                                      | 0.51                        | 2.5                             |

SOURCE: “The Economic Impact of a Rural Primary Care Physician and the Potential Health Dollars Lost to Out-Migrating Health Care Services,” Eilrich, F, Doeksen, G.A., and St. Clair, Cheryl F., National Center for Rural Health Works, Oklahoma State University, January 2007, ([www.ruralhealthworks.org](http://www.ruralhealthworks.org) [February 2009]).

workdays per week. For example, a population of 12,834 would be required to fully employ one general surgeon. Based on the assumption that the utilization rates would be the same for specialist as primary care practitioners, the surgical needs in the Tyler Holmes Memorial Hospital MSA would support approximately 1.3 general surgeons which is equivalent to 6.7 workdays per week. **Table 6** also presents these estimates for the other specialty physicians. The number of specialty physicians currently providing services in the Tyler Holmes Hospital service area is listed in **Table 7**.

**Table 7**  
**List of Specialty Physicians in Medical Service Area**  
**Of Tyler Holmes Memorial General Hospital**

| <b>Physician Name</b> | <b>Type of Practice</b> | <b>Frequency</b> | <b>FTEs</b>        |
|-----------------------|-------------------------|------------------|--------------------|
| Dr. James Green       | Psychiatry              | 8 hrs/wk         | 0.20               |
| <b>Total FTEs</b>     |                         |                  | <b><u>0.20</u></b> |

SOURCE: Tyler Holmes Memorial Hospital Physician Roster (August 2011).

Typically, since smaller, rural populations are only able to support a fraction of a specialty care physician’s FTE, hospitals or other entities host specialty clinics that have a rotation of specialty care physicians practicing there. The supporting hospital usually provides the facility and maybe an office person to help with scheduling and the physician brings clinical staff and completes the billing. In this way, the specialty care physician needs of the community can be met without a specialty care physician actually residing in the community.

Unique economic impacts are gained through a community utilizing specialty physician clinics; the impacts on the local community are difficult to ascertain. Different diagnoses and specialists will bring differing revenues. Notably, research has shown that by providing specialty clinics in communities, fewer dollars are out-migrated to other communities for laboratory and pharmacy services. A 2006 survey in Louisiana found that over 90 percent of the patients who

went out-of-town to visit a specialist also received their laboratory work and pharmacy services at the specialists' locations [7].

### **Summary**

The analysis above presents the methodology and results for estimating the demand for primary care practitioners and specialty physicians in the service area of Tyler Holmes Memorial Hospital, located in Winona, Mississippi. The results for primary care practitioners suggest that, given an 80 percent usage rate from the MSA, an estimated 7.1 primary care physicians can be supported. The actual number of physicians that the MSA of Tyler Holmes Memorial Hospital can support will vary based on the locally-determined usage rates. Estimates of these usage rates should be used in conjunction with the current status of the primary care physicians and mid-level practitioners in the MSA to determine the next steps for the community.

In addition to estimating the need for primary care practitioners, a methodology was introduced that can assist communities in determining the need for selected specialty physicians. Based on the population of the MSA, an FTE of 1.34 general surgeons could be supported in the primary service area of the Tyler Holmes Memorial Hospital; this is the equivalent of 6.7 days per week. The other selected specialties are also illustrated.

Many assumptions have been made in this analysis. These include items that may change, such as the population in the MSA or the delineation of the MSA. For example, the MSA of Tyler Holmes Memorial Hospital, as depicted here, may change due to the exit or entry of physicians or mid-level practitioners from nearby communities. Should this occur, revised estimates of office visits should be calculated.

All assumptions should be closely examined by local decision-makers to verify that they reflect local conditions. If additional local data are available, these data should be utilized to derive the most realistic conclusion possible for the local community.

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