

Oklahoma State University Center for Rural Health Report to the Senate Interim Study on
Comprehensive Assessment of Healthcare Workforce Issues

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LIST OF ABBREVIATIONS, ACRONYMS & SYMBOLS

American Association of Family Physicians	AAFP
American Osteopathic Association	AOA
Doctor of Osteopathic Medicine	DO
Graduate Medical Education	GME
Health Professional Shortage Area	HPSA
Health Resources and Services Administration	HRSA
Obstetrics & Gynecology	OB/GYN
Oklahoma State University Center for Health Sciences	OSU CHS
Oklahoma State University College of Osteopathic Medicine	OSU COM
Oklahoma Area Health Education Center	OkAHEC
Physician Manpower Training Commission	PMTC

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SUMMARY OF FINDINGS

Oklahoma Osteopathic Physician Practice Distribution

- Oklahoma ranks 6th in the nation in the number of active primary care DOs per capita.
- 56% (916 out of 1646) of active Oklahoma osteopathic physicians are practicing in one of the four traditional primary care specialties (Family Medicine, Internal Medicine, Pediatrics, and Obstetrics/Gynecology).
- 38% (621 out of 1646) of active Oklahoma osteopathic physicians are in family practice.
- There are substantial gender differences among Oklahoma osteopathic physicians, with 64% of female osteopathic physicians practicing in primary care compared to 52% of male DOs.
- 27% of Oklahoma DOs are practicing in a rural area.
- Approximately 70% (1159 out of 1646) of active Oklahoma osteopathic physicians are OSU COM alumni.

OSU COM graduates (2005-2009) Workforce Trends

- *U.S. News and World Report* recently ranked OSU COM 8th in the proportion of graduates of U.S. medical schools entering primary care residencies based on graduate information from 2006-2008.
- 55% selected a residency in one of the four traditional primary care specialties.
- There were significant gender differences with 62% of women choosing primary care compared to 47% of men.
- Approximately 1/3 of recent graduates reported a rural hometown.
- Students from rural hometowns chose rural residencies at 3.5 times the rate that students from urban hometowns select rural residencies.

OSU COM Pre-Doctoral Training in Primary Care Grant Program

- Focus: Increase the number of students in rural, primary care residencies, particularly family medicine.
- Develop the Rural Health Option, an elective program for increasing rural didactic and clinical training for OSU COM students delivered through the Center for Rural Health.
- To date, 12 students have completed the first elective course and have submitted application to the Rural Health Option, exceeding the first year goal for enrolled students by 50%.

Oklahoma Area Health Education Center (OkaHEC)

- Has distributed health career information to more than 200,000 disadvantaged and/or underrepresented minority children and youth.
- Has engaged more than 11,000 students in health career education, averaging more than 14 hours per student.

OSU COM Physician Manpower Training Commission (PMTTC) Participants

- Since 1978 PMTC has provided assistance to 303 OSU COM graduates.
- 83% (252 out of 303) of Program Completers continue to practice in Oklahoma.
- For those whose obligated practice location was rural, 84% (145 out of 173) are currently practicing in a rural area.
- 62% (157 out of 252) of all OSU COM PMTC participants are currently practicing in a rural area compared to 28% of all Oklahoma OSU COM alumni.
- Participants have been predominantly male, but female participation is increasing and 35% of currently obligated graduates are women.

INTRODUCTION

“...a greater emphasis on primary care can be expected to lower the costs of care, improve health through access to more appropriate services, and reduce the inequities in the population’s health.” (Starfield et al., 2005, p. 458-459)

The consensus goals of healthcare reform that include containing costs, broader insurance coverage, and better patient outcomes, depend on better access to primary care physicians. Recruitment and retention of health care providers was consistently mentioned as a top concern on a recent survey that assessed issues affecting Oklahoma’s rural hospitals (Oklahoma Office of Rural Health, 2009). When these results are coupled with the fact that Oklahoma recently ranked 50th in the nation in the number of physicians per capita (AMA, 2008), the issue of recruitment and retention of primary care physicians becomes critical to insuring adequate healthcare for Oklahomans. Compounding the problem of too few physicians statewide is the fact that although nearly half of Oklahoma residents live in rural areas, only 27% of active osteopathic physicians practice in rural areas. Although Oklahoma exceeds the national average in the proportion of osteopathic physicians in rural practice, rural workforce shortage issues persist due to a general shortage of primary care physicians. Further, the health care needs of rural residents are more acute than the general population because rural residents tend to be older, poorer, and sicker than their urban counterparts (OSU Center for Rural Health, 2008). The key to ensuring access to quality healthcare for rural Oklahomans is effective recruitment and retention of physicians to rural practice.

Rural background is frequently mentioned as the most important predictor in rural physician retention, yet the American Association of Family Physicians (AAFP) reports that rural residency training is the strongest predictor of physician decisions to stay in rural communities. Rural background, although a significant predictor of recruitment to rural practice, proved to have no significant relationship to rural physician retention (AAFP, 2009). The efficacy of rural residencies in producing rural physicians was reported in a large-scale analysis of the American Osteopathic Association (AOA) Masterfile data (Chen et al., 2008). Specifically, 50% of osteopathic graduates (1988-1997) who trained in a rural residency were practicing in rural areas in 2005 compared to an overall rate of 18% for osteopathic graduates

during the same period. Similar results have been confirmed in smaller scale survey studies of practicing physicians. Analysis of a variety of residency programs in Massachusetts that were focused on health profession shortage areas (HPSAs) found that graduates participating in rural residencies were not only more likely to select an initial rural practice location but also to report currently practicing in a rural location (Ferguson et al., 2009). In addition, the study affirmed that National Health Service Corps scholarship and/or loan forgiveness funds influence initial practice choice but not retention. The results of a national survey of rural physicians indicated that rural residency experiences were associated with increased preparation for rural practice, preparation for small-town living, and longer retention (Patham et al., 1999). Rural clinical rotations alone were associated with greater preparedness for rural practice but were not associated with preparedness for small-town living. This is an important finding as preparedness for small-town living was the only variable associated with rural-practice duration. These results affirm the importance of community factors to the long-term satisfaction of rural physicians. In spite of the documented effectiveness of rural residency programs, it is estimated that less than 4% of osteopathic physicians participated in a rural residency. These studies provide strong support for the expansion of rural residency programs as perhaps the most effective tool to ensure an adequate medical workforce in rural areas.

This report examines the contributions of Oklahoma State University College of Osteopathic Medicine (OSU COM) graduates in the provision and delivery of health care in rural Oklahoma. To begin, we present an overview of the current osteopathic physician workforce with attention to OSU COM trained physicians and specialty mix. Second, we examine the future workforce trends of OSU COM graduates. Finally, we address the issue of physician retention in rural areas with data from the Oklahoma Physician Manpower Training Commission (PMTTC) that highlights the effectiveness of PMTC funding in the effort to supply physicians to rural Oklahoma.

OKLAHOMA OSTEOPATHIC PHYSICIAN PRACTICE DISTRIBUTION

Recruitment of physicians to rural practice begins with recruitment to a primary care specialty. Primary care specialties in general and family practice in particular represent the greatest shortage areas in rural practice. The Oklahoma Board of Osteopathic Examiners provided practice information for 1825 Oklahoma osteopathic physicians. The records were coded by gender and medical specialty. Permanently retired physicians (n = 88) were deleted from the file as well as physicians serving at the Veteran’s Administration (n = 16), military service (n = 18), public health service (n = 53), and correctional facilities (n = 4). Results for the remaining 1646 physicians indicate that approximately 56% are practicing in one of the primary care specialties (Table 1). Trends in Oklahoma’s physician specialty distribution by gender are somewhat similar to national trends with more women (64%) choosing a primary care specialty than men (52%). Women are particularly dominant in pediatrics and obstetrics/gynecology where they make up 63% of Oklahoma’s osteopathic pediatricians and 60% of the state’s OB/GYN practitioners (see Figure 1 and Figure 2 on the next page).

Table 1. Active osteopathic physicians practicing in Oklahoma, by specialty & gender

	Family Practice	Internal Medicine	Pediatrics	OB/GYN	Non-Primary Care	Total
Female	181	51	61	32	179	504
Male	432	91	36	21	539	1,119
Total*	613	142	97	53	718	1,623

* Gender not reported for 23 physicians

Examination of the data including only OSU COM graduates revealed that there are currently 1223 OSU COM alumni in active practice in Oklahoma. For the present analysis, physicians serving in the military (n = 6), Veteran’s Administration (n = 16), correctional facilities (n = 3) or public health service (n = 39) were removed leaving 1159 active DOs. The physician distribution for OSU COM alumni is very similar to the distribution for all Oklahoma DOs with a slightly higher proportion (60%) practicing in the primary care specialties (Table 2).

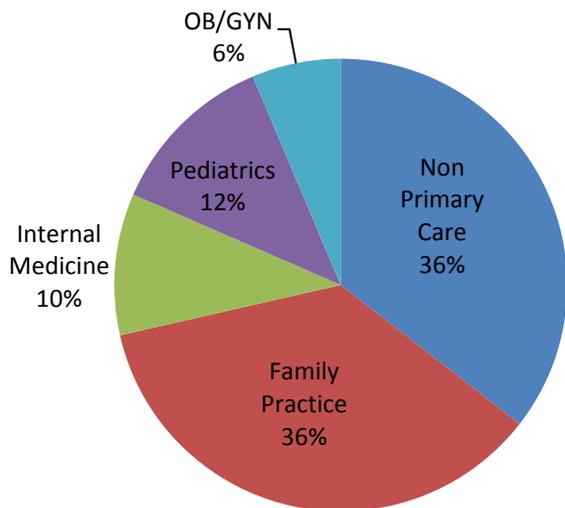


Figure 1. Active female osteopathic physicians in Oklahoma by specialty (n = 504)

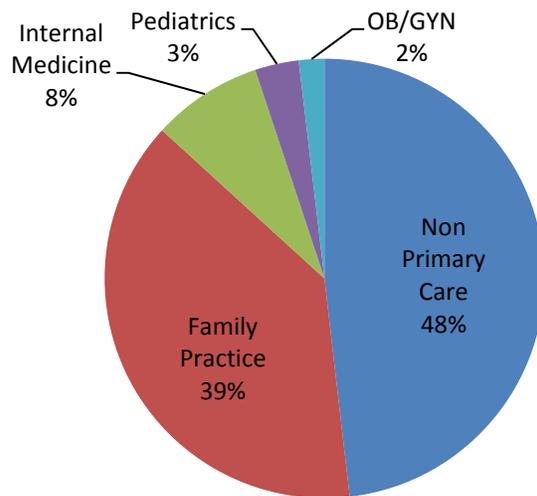


Figure 2. Active male osteopathic physicians in Oklahoma by specialty (n = 1119)

Table 2. Active OSU COM alumni practicing in Oklahoma, by specialty and gender

	Family Practice	Internal Medicine	Pediatrics	OB/GYN	Non-Primary Care	Total
Female	139	41	50	25	133	388
Male	323	22	17	17	327	757
Total*	462	110	72	42	460	1146

* Gender not reported for 23 physicians

Figure 3 shows the spatial distribution of all active osteopathic physicians in Oklahoma. The rural counties encompass 27% of all the active osteopathic physicians, with urban counties home to 70% and the remaining 3% located in mixed urban/rural counties. The unequal distribution of osteopathic physicians between urban and rural is due in part to the numerous graduate medical education (GME) programs located in Tulsa and Oklahoma City. The proportion of active osteopathic physicians practicing in rural Oklahoma increases to 32% if resident physicians and those physicians who are completing fellowships and internships are excluded from consideration. The distribution is nearly identical for OSU COM alumni in active practice with 28% practicing in rural counties, 68% in urban counties, and 4% mixed counties (Figure 4).

Figure 3. Current practice sites of active osteopathic physicians, all specialties

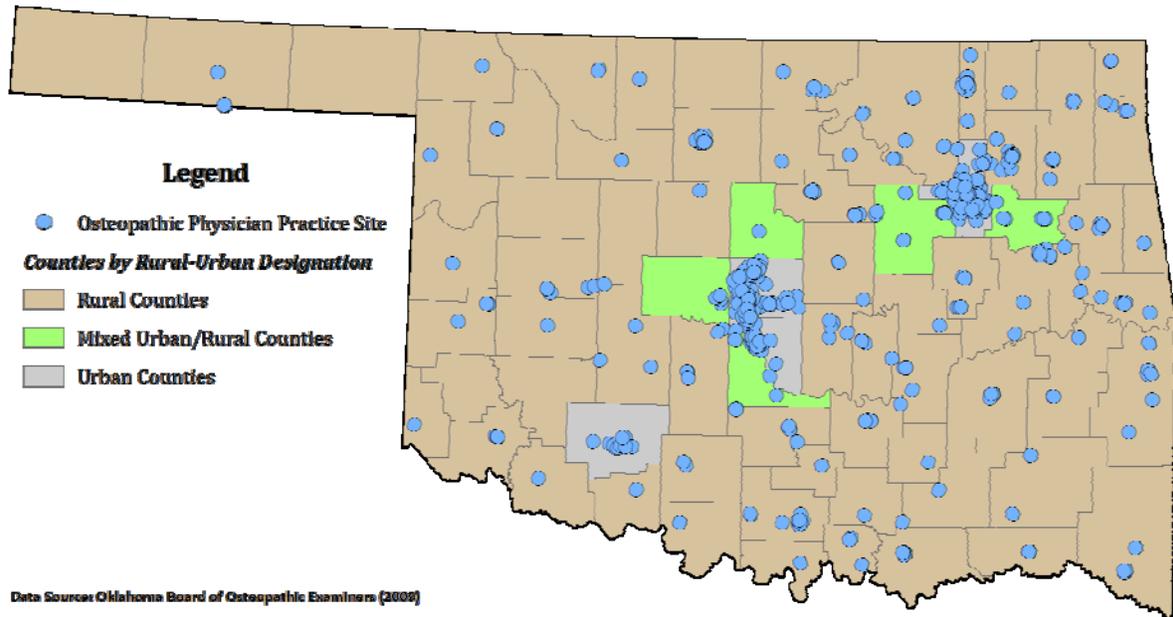
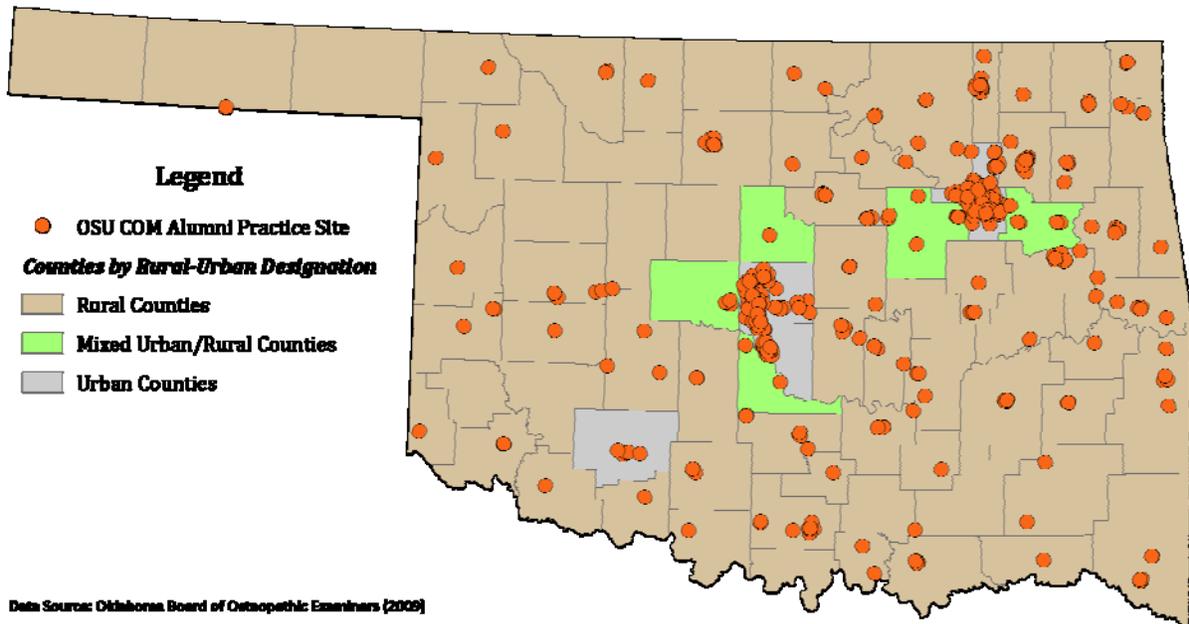


Figure 4. Current practice sites of active OSU COM alumni, all specialties



OSU COM GRADUATES (2005-2009) WORKFORCE TRENDS

In order to examine future physician workforce trends, the OSU Center for Rural Health collected practice interest information from a sample of 372 students who graduated from 2005 through 2009. Surveys were administered both before students began third year clinical rotations and at the completion of fourth year clinical rotations. Questions included an assessment of interest in rural medical practice, interest in primary care and other specialties, and questions regarding practice expectations such as use of technology, income potential, location, etc. In addition, students' residency choice and location were tracked. The results indicate that 55% of graduates selected a residency in one of the four traditional primary care specialty areas, family practice, internal medicine, pediatrics, and obstetrics/gynecology. Approximately 24% of the total selected a residency in family practice, the specialty most frequently associated with rural practice. There were noticeable differences in specialty selection according to gender that mirror national trends. Specifically, more female graduates selected primary care specialties especially in pediatrics and obstetrics/gynecology.

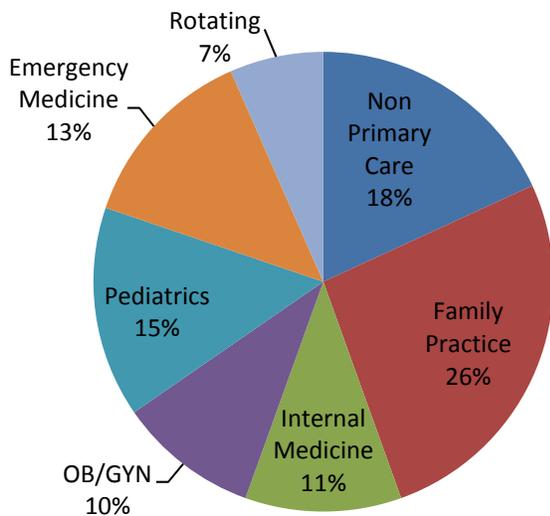


Figure 5. OSU COM residency choice – female graduates 2005-2009 (n=182)

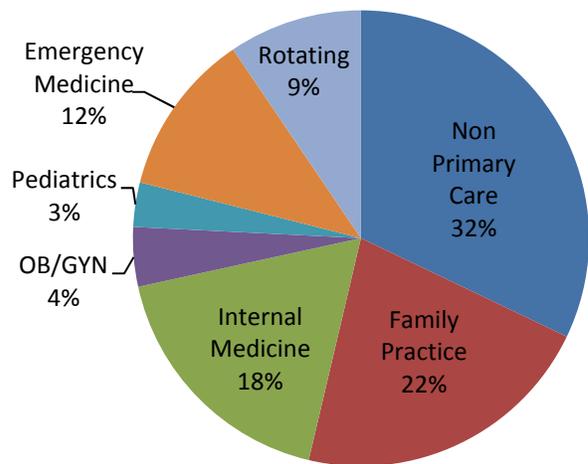


Figure 6. OSU COM residency choice – male graduates 2005-2009 (n=190)

The OSU Center for Rural Health graduate survey results were also examined by hometown classification. Approximately two-thirds of the 2005-2009 graduates reported an

urban hometown. Only 2% of these students selected a rural residency while nearly 7% of the students from rural hometowns selected rural residencies. Residency location by gender indicated little if any difference as 3% of male students selected a rural residency compared to 4% of female students. These preliminary and somewhat limited survey results seem to indicate that OSU COM is producing primary care physicians at a rate significantly above the national average of 29% (Levitan et al., 2009) but still below levels needed to supply Oklahoma's physician shortage.

OSU COM is addressing recruitment and retention issues in part through a recently acquired Health Resources and Services Administration (HRSA) grant. The focus of the grant is twofold: first, to increase the number of students who select primary care residencies with particular emphasis on family medicine, and second, to encourage participation in newly established rural residency locations. OSU COM now offers a Rural Health Option for medical students with elective coursework that focuses on rural health issues. Twelve students have submitted applications to the program, exceeding the first year goal by 50%. Enrollment in the elective courses developed for the Rural Health Option has also exceeded initial estimates. Twelve students completed the first course, Perspectives in Rural Health, in the spring 2009 semester and 17 are currently enrolled in the second course, Rural Medical Care, for the fall 2009 semester.

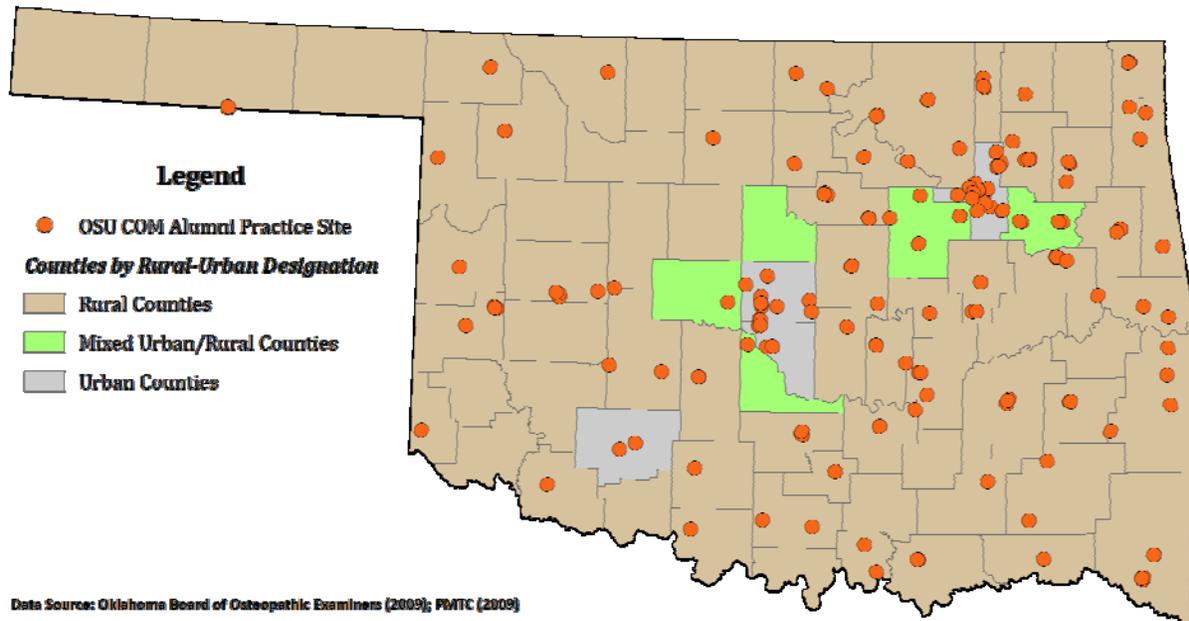
Assistance with physician and allied health workforce recruitment and retention is also provided by the Oklahoma Area Health Education Center (OkAHEC), established in 1984 at OSU COM and a vital part of the OSU Center for Rural Health. OkAHEC has two primary goals: to improve the quality, distribution and supply of physicians to rural and underserved communities, and to reduce disparities in access to health care between Oklahoma's rural and urban populations. OkAHEC works to achieve these goals through health career awareness, exploration and training programs for students from elementary school through college. OkAHEC has distributed health career information to more than 200,000 youth and parents during the last 5 years. During the same period, more than 11,000 disadvantaged and/or underrepresented ethnic minority high school students spent, on average, just over 14 hours participating in more in-depth health career education. A recent follow-up survey of students who completed 20 or more hours of OkAHEC career programming found that 91% are

participating in some type of higher education training and 59% are entering a health professions training track. In addition, OkAHEC assists with community-based rotations for the University of Oklahoma Physician Assistant Program and Oral Roberts University, Tulsa Community College, Northwestern Oklahoma State University, and Northern Oklahoma College Nursing Programs. OkAHEC also assists with teaching and lectures for OSU COM, Cameron University psychology, Northeastern State University optometry, Rogers State University nursing, and University of Oklahoma Tulsa physician assistant programs.

OSU CHS PMTC PARTICIPANTS

The Physician Manpower Training Commission (PMTC) was established by the Oklahoma state legislature in 1975 with the primary mission of increasing the number of physicians and nurses in rural and underserved areas of the state (Table 3. Current practice locations of osteopathic physicians who received PMTC funding and fulfilled all obligations, by decade of participation. and Table 4). PMTC has provided financial assistance to 333 OSU COM (formerly Oklahoma College of Osteopathic Medicine and Surgery) graduates. Thirty graduates opted to repay PMTC loans and terminated their contract, resulting in 303 program completers since 1978. Of all program completers, 252 (83%) continue to practice medicine in Oklahoma. Fifty-one program completers completed their contractual practice obligation but are either no longer in active practice or have left the state. As previously mentioned, 28% of the OSU COM alumni that are active osteopathic physicians practicing in Oklahoma are practicing in rural areas of the state. For OSU COM alumni who participated in PMTC's rural and urban practice location funding programs, 157 out of 252 (62%) are practicing in rural areas. For those whose obligated practice location was in a rural area, 145 out of 173 or 84% are currently practicing in a rural location (Figure 7).

Figure 7. Current practice sites of active OSU COM alumni that completed obligated PMTC service, all specialties



PMTC has funded on average 7 OSU COM graduates per year; however, participation in PMTC has steadily increased since the first physicians were funded in 1978. Although PMTC participants are predominantly male (76% overall), the number of female participants is gradually increasing. In the decade from 1978 to 1987, only two women, representing 5% of the total, participated in the program. In the following decade, 1988 to 1997, the number increased to 11 (18%) and most recently, 1998 to 2007, the number has increased to 29 (28%) of total participants. For the most recent graduates, still completing residencies or remain under contract, the proportion of female participants is nearly 35%. Clearly, PMTC programs have been successful in the recruitment and retention of OSU COM graduates to rural practice in Oklahoma.

Table 3. Current practice locations of osteopathic physicians who received PMTC funding and fulfilled all obligations, by decade of participation.

Practice Location	1978-1987	1988-1997	1998-2007	Total
Urban	11	15	34	60
Mixed	2	2	9	13
Rural	31	43	68	142
Total	44	60	111	215

Note: Current location information and/or initial contract date was not available for 37 participants.

Table 4. Assigned practice locations of osteopathic physicians who received PMTC funding, by decade of participation.

Practice Location†	1978-1987	1988-1997	1998-2007	Total
Urban	5	4	24	33
Mixed	3	4	12	19
Rural	35	52	74	161
Total	43	60	110	213

† As assigned by PMTC

Note: There was no location information for 19 participants and no contract dates for an additional 20 participants.

SUMMARY AND CONCLUSIONS

Even if health care reform were to result in health insurance coverage for all Oklahomans, workforce shortages would prevent access to health care for many. Rural areas urgently need primary care physicians and more specifically, family practice physicians. The mission of the OSU Center for Rural Health includes the recruitment and retention of physicians in rural areas of Oklahoma to help ensure continued access to quality health care. Although Oklahoma ranks 50th in the total number of physicians per capita, the same report ranked Oklahoma 6th in the number of active primary care DOs per capita (AMA, 2008). OSU COM is producing a substantial number of primary care physicians who tend to stay in Oklahoma for both residency training and post-residency practice. In fact, *U.S. News and World Report* recently ranked OSU COM 8th in the nation in the proportion of graduates selecting primary care residencies based on information from 2006 through 2008 (*U.S. News and World Report*, 2009).

Substantially more women than men are choosing to practice primary care yet fewer women are practicing in rural areas. There are both similarities and distinct differences in what attract men and women to rural practice. Factors that have been identified as significantly different in rank order and more important to women include employment opportunities for spouse, availability of childcare, and flexible scheduling opportunities (Ellsbury et al, 2002; Wainer, 2004). These differences reflect family concerns that must be addressed in the recruitment process in order to attract female practitioners. Clearly more gender-related research is needed not only to understand the distribution of female primary care physicians in rural areas of Oklahoma but to better understand specific recruitment and retention issues related to gender. With females representing half of the future physician workforce and the majority of primary care specialists, gender specific recruitment issues cannot be ignored.

The challenge now is to facilitate even more interest in primary care as well as increased interest in rural practice. The focus of the OSU Center for Rural Health is to increase the number of students who select a rural residency and ultimately a rural practice location by providing specialized courses to address rural practice issues, expanding rural residency programs, and devoting personnel and resources to researching issues related to physician shortage issues in rural Oklahoma.

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