

Outpatient Referral Rates in Family Medicine

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ABSTRACT

OBJECTIVES: Rates and patterns of referrals by family physicians to specialists have significant effects on numerous aspects of medical care. Understanding the referral patterns of residents is important, as doing so may guide residency program curriculum development to ensure appropriate broad-scope training. This study examined and compared the outpatient referral rates of family medicine residents, residency faculty, and clinical faculty.

STUDY DESIGN: We conducted a retrospective electronic chart review of referrals associated with clinic visits of patients who received primary care services from residents, residency faculty, and clinical faculty.

METHODS: The primary outcome measured was the proportion of patient visits per year that resulted in a referral for services or a specialist visit. We used random effects meta-analysis methodology for comparisons among physicians.

RESULTS: The overall referral rate was less than 20% for all types of referrals, but did increase from fiscal year (FY) 2014 to FY 2015. For medical referrals to other specialists, the residents referred significantly more than the residency faculty in FYs 2014 and 2015.

CONCLUSIONS: The referral rates among residents, clinical faculty, and residency faculty caring for similar patient populations can be significantly different. Further multicenter analysis to determine the reasons for this is needed to ensure that residents are receiving the full scope of training necessary to care for a diverse patient population.

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Rates and patterns of referrals by generalists, such as family physicians, to specialists have significant effects on numerous aspects of medical care, including the quality and cost of care provided. The appropriate use of referrals can decrease diagnostic uncertainty and assist with the implementation of proper treatment that improves the quality of care provided. Study findings have suggested that the knowledge base and quality of care provided by specialists for specific conditions may exceed that of generalists; however, specialist care can be lacking in preventive care, disease management, and health maintenance common to generalists.¹ The inappropriate use of referrals can be inconvenient, costly, and inefficient for patients, as additional and unnecessary tests and procedures may be ordered.^{1,2}

As reimbursement structures shift toward value-based care, more scrutiny is being placed on the amount and quality of care provided by primary care physicians. One area that warrants evaluation is referral rates, as they have increased over the past decades, leading to higher costs of care. According to the National Ambulatory Medical Care Surveys, between 1999 and 2009, the probability of receiving a referral during an ambulatory patient visit increased from 4.8% to 9.3%, a 92% increase.³ Another study found a wide range of referrals from primary care physicians, from less than 5% of patients per year to greater than 60%.⁴

Limited research has examined the rates of academic ambulatory clinic referrals, including resident referrals. Between 1977 and 1985, the referral rate to specialist physicians was 1.4% for 1 family medicine residency, which was actually less than the 2.7% rate published by the National Ambulatory Medical Care Survey from 1971.⁵ By the 1990s, the referral rates of internal medicine residents were 19.8%,⁶ whereas rates of family medicine residents were reported at 4.3%.⁷ When considering academic generalists' primary reasons for referrals, most reported referring patients to get diagnostic or therapeutic advice or to have a specialist perform a diagnostic or therapeutic test. For nonmedical referrals, generalists reported that the primary reasons were following perceived standards of care, patient requests, and self-education.^{8,9}

Understanding the referral pattern of academic physicians and residents is important as we strive to produce well-equipped primary care physicians capable of caring for a growing population with diverse needs and to create a more efficient healthcare system. Examining referral patterns may highlight additional services or training needed to address those specific patient care needs and to guide residency program curriculum development. Therefore, the aim of this study was to examine the outpatient referral rate of family medicine residents to begin exploring services or training needed for residents to ensure they maintain a broad scope of training. Additionally, the referral rate of family medicine physicians who teach, supervise, and practice in the same clinic as the residents was examined, as well as referrals from physicians not directly associated with the residency program who were practicing at a separate, yet similar, clinic in the same community.

METHODS

We conducted a retrospective electronic chart review of referrals associated with clinic visits of patients who received medical care from our Community Health and Family Medicine Clinics associated with the University of Florida over 2 academic years, July 1, 2013, to June 30, 2015, in 3 distinct practices: residency, residency faculty, and clinical faculty. The resident and residency faculty practices are housed in the same clinic building, whereas the clinical faculty practice is in another building located approximately 3 miles away and treats the same underserved patient population. The clinical faculty practice includes a pediatrician and a pediatric nurse practitioner. All other providers in the 3 practices are family physicians. The residency and residency faculty practices include embedded procedures, women's health, and sports medicine clinics at their site, which are staffed by family medicine faculty at that site but were not available to the clinical faculty practice. The Institutional Review Board and Privacy Office at the University of Florida approved this study.

Data were obtained from the University of Florida Physicians Decision Support (UFPDS) team and the reporting software Cognos Impromptu (IBM; Armonk, New York). The information obtained

from UFPDS on patients and associated referrals included patients' demographic information (medical record number, age, gender, race, ethnicity, and primary health insurance coverage); clinic visit information that resulted in the referral (type of visit, reason for visit, visit location, and provider); *International Classification of Diseases, Ninth Revision* diagnoses related to the referral; specialty being referred to; and referral type (internal or external). For referral type, referrals were considered internal if they were to our own family medicine clinic and external if they were to any other provider or service, whether in our academic health system or outside of our system. Cognos Impromptu provided data on all clinic visits, regardless of referrals, occurring in that time period, which were used to calculate the denominator. The Cognos Impromptu report included clinic visit dates, patient information, and primary insurance coverage. The 2 datasets were combined, linking all referrals by the clinic visit encounter from which the referrals were placed.

Data Analysis

The primary outcome measured was the proportion of patient visits per year that resulted in a referral for services or a specialist visit outside of the family medicine department (all referrals), termed the referral rate. These excluded the internal referrals to the procedure, women's health, or sports medicine clinics within our practice that were part of the workflow process. The referrals were broken down into "all referrals," which encompassed a referral outside of our family medicine clinics for any service or visit, and "medical referrals," which were referrals placed to physician specialists as opposed to referrals for ancillary services (ie, physical therapy, imaging, etc). Two academic years were used to allow for comparison of resident referral patterns between consecutive years of training to determine if residents were more or less likely to refer patients based on their year of training. Analyses were stratified by physician, and encounters were included only if the physician had encounters in both academic time periods. Proportion estimates and comparisons among them used random effects meta-analysis methodology, using Comprehensive Meta-Analysis version 3.0 (Biostat, Inc; Englewood, New Jersey), using physicians as "studies." This enabled us to account for repeated measures within each physician and, when years were compared, to pair within physician by year.

To be eligible for analysis, physicians had to have the potential to place referrals in both years. The experimental unit in such an analysis was the physician, not the patient. A patient-level analysis, such as logistic regression, was not an acceptable approach, as it would either treat the physician as a fixed effect or ignore the variance component between physicians, thereby underestimating the true sampling errors of the estimates. Random-effects meta-analysis methodology,¹⁰ in which each individual physician takes the role of "study," controls for between-physician confounding factors when comparing years. Because we have repeated measures by year, we can

Table 1. Referral Rates for 2014 and 2015

	Encounters n	All Referrals % (SE)	FY 2014 vs FY 2015 P	Medical Referrals % (SE)	FY 2014 vs FY 2015 P
Residency			<.001		.36
FY 2014	24,139	17.1 (0.23)		12.5 (0.69)	
FY 2015	24,493	19.4 (0.24)		13.4 (0.69)	
Clinical Faculty			<.001		.41
FY 2014	11,913	15.2 (0.32)		8.5 (2.09)	
FY 2015	12,792	17.3 (0.33)		10.8 (1.81)	
Residency Faculty			<.001		.50
FY 2014	5370	14.1 (0.47)		9.6 (1.07)	
FY 2015	6129	17.9 (0.48)		8.7 (0.82)	

FY indicates fiscal year; SE, standard error.

evaluate between-year differences in a causal manner, but we cannot attribute cause and effect when contrasting centers.

Referral rates per physician were calculated as number of referrals divided by the number of patient visits per year. Internal referrals within the department to the procedure, women’s, or sports clinics, which were staffed by our family medicine physicians, were excluded. Demographic characteristics of patients were compared by analysis of variance (age) and Pearson’s χ^2 (gender, race, and payer).

RESULTS

The referral rates (all referrals and medical referrals) for the 3 practices over the 2 academic years are listed in **Table 1**. The overall referral rate significantly increased from 2014 to 2015 for all clinical practices, but the medical referral rates did not significantly change between years. For medical referrals (**Table 2**), the residents referred significantly more than the residency faculty in 2014 and 2015, but not significantly more than the clinical faculty. There was no significant difference in medical referrals between residency faculty and clinical faculty, nor in referral rates of individual physicians between the 2 years analyzed.

DISCUSSION

The overall referral rate was less than 20% (Table 1), which is not vastly different than that reported by internal medicine residents in 1992,⁶ although the medical referral rate range of 8.5% to 13.4% in the current study is substantially higher than the 1.4% average from family medicine residents in the 1980s.⁵ Study findings have suggested that physicians who are less comfortable with uncertainty or reluctant to disclose uncertainty to patients or other physicians refer more patients to specialists and/or order more testing.^{2,11,12} Perhaps residents, as newer physicians, are less comfortable with uncertainty compared with more experienced faculty. Residents may also feel that referring patients to specialists is educational and complementary to

their training, as they follow what the specialist does for further workup and treatment of the patient.

Another possibility for the increased referral rate might be the knowledge gap between residents and residency faculty. However, residents are required to precept all patients with faculty to receive assistance with formulating a plan. Because there is generally less continuity of care in resident practices, perhaps residents and/or preceptors are more likely to refer patients to ensure appropriate follow-up is guaranteed. Patient requests and pressure may also contribute to higher resident referral rates.^{8,9} Other studies have shown that younger physicians may experience more pressure from patients for a referral.¹³

A large number of referrals were to ancillary services (Table 1), such as physical therapy, occupational therapy, and nutritional counseling, and this number significantly increased for all groups from 2014 to 2015, whereas the number of medical referrals was not significantly different. Residents actually referred less than both residency and clinical faculty to those services. One reason may be that residency and clinical faculty more often utilize these ancillary services, whereas residents depend more on specialists. Further investigation of this trend is warranted.

Limitations

There are several limitations to this study. The findings, based on a single academic practice with clinic sites in an underserved geographic location in the Southeast, may not be applicable to all clinic sites or practices. The data analyzed were extracted from electronic health records and billing data, and they may have unintentional errors. Due to the volume of data analyzed, we grouped some types of referrals together, which may not accurately reflect the reasons for referrals. Duplicate referrals were unable to be excluded. These may occur when a physician feels that the previous referral did not get to the intended service or department due to administrative errors or electronic health record errors in transmission. However, this would be an issue for all 3 groups and does not fully explain the increased medical referral rate of the residents. This study does not provide any information on the appropriateness of referrals.

CONCLUSIONS

The referral rates among residents, clinical faculty, and residency faculty caring for similar patient populations were found to be significantly different. Further multicenter analysis to determine the reasons for this is needed to ensure that residents are receiving the full scope of training necessary to care for diverse patient populations. As family physicians work to maintain their broad scope of practice, it will be important to ensure that residents are getting the best educational experience possible to allow them to care for medically complex patients in a variety of practice settings.

Table 2. Comparisons of Medical Referrals Among Practices for 2014 and 2015

	Residency (95% CI)	Residency Faculty (95% CI)	Clinical Faculty (95% CI)	Difference (95% CI) ^a	P ^b
FY 2014	0.125 (0.112-0.139)		0.085 (0.052-0.134)	0.040 (-0.003 to 0.083)	.069
FY 2015	0.134 (0.121-0.148)		0.108 (0.078-0.149)	0.026 (-0.012 to 0.064)	.18
FY 2014	0.125 (0.112-0.139)	0.096 (0.099-0.119)		0.029 (0.004-0.054)	.023
FY 2015	0.134 (0.121-0.148)	0.087 (0.072-0.104)		0.047 (0.026-0.068)	<.001
FY 2014		0.096 (0.077-0.119)	0.085 (0.052-0.134)	0.011 (-0.035 to 0.057)	.64
FY 2015		0.087 (0.072-0.104)	0.108 (0.078-0.149)	-0.021 (-0.060 to 0.018)	.29

FY indicates fiscal year.

^aEach difference and P value represents the row-wise comparison of the 2 entries on the row.

^bStatistically significant ($P < .05$) results in **bold**.

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