



What's the Right Referral Rate? Specialty Referral Patterns and Curricula Across 13 Collaborative Primary Care Residencies

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BACKGROUND AND OBJECTIVES: Specialty physician visits account for a significant portion of ambulatory visits nationally, contribute significantly to cost of care, and are increasing over the past decade. Marked variability in referral rates exists among primary care practices without obvious causality. We present data describing the referral process and specialty referral curriculum within the I3 collaborative.

METHODS: Residency directors were surveyed about residency characteristics related to referrals. Specialty physician referral rates were obtained from each program and then correlated to program characteristics referral rates in four domains: presence and type of referral curriculum, process of referral review, faculty preceptor characteristics, and use of referral data for administrative processes.

RESULTS: The survey response rate was 87%; 10 programs submitted complete referral data. Three programs (23%) reported a formal curriculum addressing the process of making a referral, and four programs (31%) reported a curriculum on appropriateness of subspecialty referrals. Specialty referral rates varied from 7%–31% of active residency patients, with no relationship to age, payor status, or race.

DISCUSSION: Marked variability in referral rates and patterns exist within primary care residency training programs. Specialty referral practices are a key driver of total cost of care yet few curricula exist that address appropriateness, quantity, or process of specialty referrals. Practice patterns often develop during residency training, therefore an opportunity exists to improve training and practice around referrals.

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The consultation and referral process from primary care to specialty care is complex, varies widely among primary care providers, and is a key driver of the total cost of health care.^{1,2} The

frequency of referrals, defined as an outpatient referral made by a primary care provider to a subspecialty physician service, is increasing as well and has almost doubled in the last decade, resulting in almost 100

million specialty referrals annually.³ In many settings, specialty consultations and referrals lack coordination and may generate testing redundancy, disagreement on the role of the specialty physician, and lateral or cross-referrals among subspecialty care.⁴ The result can be poor quality, overutilization, and subsequent increased cost of care, and a patient experience that has been described as “a perilous journey through the Health Care System.”⁵ However, cost and quality in primary care can be dramatically improved by carefully defined relationships with specialty consultants.⁶

There is increasing evidence that residency training has a long-term impact on how graduates practice throughout their career;⁷ however, little information exists to describe how family medicine residencies train the process of referrals. Referring to specialty care is a fundamental skill within primary care, and management of the process is a central role of the patient-centered medical home. Yet there is little reported about residency referral rates, appropriateness of referrals and curriculum to address these skills within primary care training programs

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and few standards exist to guide the process of specialty referrals within primary care. This lack of training clarity may contribute to specialty referral rate variability reported among practicing primary care physicians.^{8,9} It is unlikely that we can reduce cost as a health care system unless we address the process and training around subspecialty referrals.

We set out to evaluate referral curriculum and referral processes among 24 primary care residencies in North Carolina, South Carolina, and Virginia.

Methods

Setting and Participants

The I3 collaborative consists of 24 family medicine, internal medicine, and pediatric residencies in North Carolina, South Carolina, and Virginia designed to improve quality of care in residency practices. Prior phases of I3 have focused on chronic care and PCMH recognition.^{10,11} I3 POP, the current phase, focused on improving population health through implementing the triple aim of improving quality, the patient experience, and health care utilization for active patients in participating residencies. Methods are similar to those described in prior phases^{10,11} and in the description of baseline data.¹² The I3 POP Collaborative used the Institute for Health Care Improvement Breakthrough Series Collaborative design to assess practice transformation and rapidly spread change specifically in primary care residencies. Collaborative participants met through monthly webinars as well as face to face collaborative meetings every six months. Baseline data from the practices, including specialty referral data, were reported annually and for some metrics monthly and quarterly. This project was approved by the I3 POP Academic Collabora-

Data Collection and Analysis

As a requirement of participation in the I3 POP collaborative, each

program reported initial practice characteristics, which included size and setting of the residency, number of providers and staff, electronic health record (EHR) used, faculty physician involvement in quality and program priorities for improvement. For this project, a referral was defined as an outpatient ambulatory referral made by a primary care provider to a subspecialty physician service. Referral rate was defined as the percentage of annual outpatient visits for empaneled patients resulting in an ambulatory subspecialty referral. This definition focused our evaluation to subspecialty physician care and therefore procedures and ancillary services such as physical therapy, nutritionist, diabetes education, and were not included. Programs reported referral rates as the sum total of referrals to their 10 most common specialties. With respect to the survey, focus group discussions of residency directors, the academic collaborative, and others helped to frame the questions and calibrate the answers. I3 residency directors were surveyed using Qualtrics software¹¹ about four domains of referral curricula: presence and type of referral curriculum, referral review process, faculty preceptor characteristics, and use of referral data for administrative processes. Complete objective data on subspecialty referrals were submitted from 13 residencies participating in the I3 collaborative. Programs submitted objective referral data abstracted from their electronic medical records or other practice management software. In total, 10 programs submitted both baseline referral data and survey response data for comparative analysis. Using chi-square testing, we assessed the likelihood and significance that programs with referral rates less than the median of the collaborative rate (25%) would answer “yes” or “no” to each question. This study was reviewed and exempted by the University of North Carolina’s Institutional Review Board.

Results

Characteristics of Participating Programs

Table 1 summarizes the characteristics and distribution of participating I3 residency programs. The majority of residencies were family medicine, mostly urban community and university-based programs, although a wide distribution of training environments were represented.

Surveys were distributed to 24 residency program directors with an 87% response rate (21/24). Of the 21 residency programs who responded to the survey, 13 had also submitted baseline specialty referral rate data. Table 2 summarizes the relationship between question responses within the four domains and the relationship to referral rates. Three programs (23%) had a formal curriculum addressing the process of making a referral, and four programs (31%) had a formal curriculum for the appropriateness of subspecialty referrals. Figure 1 shows the combined specialty referral rates to the 10 most common subspecialties as reported by participating practices. Although the referral frequency to each subspecialty varied, the most common specialties represented included GI, ophthalmology, orthopedics, surgery, behavioral health, ENT, dermatology, neurology, cardiology, and OB-Gyn. The combined referral rates varied from 7% to 31% with a median of 25%. There was no correlation between university relationship, payor status or percentage of minority patients and rate of referrals. There were no statistically significant differences in referral rates within the four domains assessing the relationship between curriculum and referral rates in the questionnaire, but there were trends toward decreased referral rates in programs that had formal review processes for referrals from advanced practice providers, used report cards for providers that included individual referral data, had curriculum that addressed the appropriateness of subspecialty referrals, and had a greater

Table 1: Characteristics of I3 Collaborative Residency Programs Participating in Referral Survey

I3 Collaborative Residency Specialties	
	n (%)
Total residency practices	30
Family medicine	25 (83)
Internal medicine	2 (7)
Pediatrics	3 (10)
Program Characteristics With Both Survey and Baseline Referral Data	
	n (%)
University department	1 (10)
Community setting	9 (90)
Rural setting	1 (10)
PCMH certification	8 (80)
I3 Collaborative Characteristics	
Empaneled patients	109,227
Yearly visits	314,373
Current residents in training	249
Current faculty clinicians	183

proportion of internal faculty preceptors, defined as core campus residency faculty as opposed to community preceptors. We also asked for narrative description of referral curriculum. Programs that described having a referral curriculum, for both process and appropriateness, identified these sessions during resident orientations or grand rounds and resident didactics related to specific clinical topics.

Discussion

Our data indicate a striking lack of formal curricula or operational management of referrals within our primary care residencies. Less than 1/3 of the residencies had formal curricula, trained preceptors, or systematically assessed the appropriateness of referrals, quantity, or outcomes. Likewise, there is dramatic variability in specialty referral rates among residency programs within the I3 collaborative.

It is important to acknowledge the limitations of our study. First, participating residency programs were from the Southeast which, given regional variation in referral patterns, may limit the generalizability of our findings. Moreover, we only had data on referral rates from 10/24 participating residencies, raising the possibility of selection bias and limiting the power of the study. This limitation speaks to the barriers that many programs continue to face in accessing and using reliable data about internal processes and practice patterns. Barriers included accessing data, expertise in running non-routine reports, and prioritization of resources to address this specific question. Despite these limitations, however, the survey response rate of program directors was very high, and the I3 residencies reflect the diversity of Family Medicine residencies and vary by size, university relationship, and urban/rural geography. Moreover, these data represent

the first available data comparing referral curricula and rates across many residencies. Another limitation of this work is that residency program directors responding to the survey may have had different understandings of what “referral curriculum” meant. Also the survey did not define the process of making referrals nor define appropriateness. More detailed interviews and focus groups will be necessary to distinguish the key elements of context and curriculum that are important to note. Finally, these data are limited to referrals for subspecialty care or other clinical services and do not address other high cost issues such as high end radiology or specialty medication use. These are also important drivers of cost and quality and should be addressed in future studies.

Within these limitations, then, what are the implications of these data? We believe that the process of consultations and referrals, both appropriateness and volume, are foundational to a central role for primary care in the health care systems of the future. They are essential to implementing the triple aim.¹³ This reality is reflected by the rapid emergence of narrow networks in which primary care providers are incentivized to refer to lower cost and higher quality specialists. There is also increasing evidence that residency programs impart long-term patterns of care on their residents, including choice of medications, complication rates for procedures,¹⁴ and overall experience of care. While we do not yet know if referral behaviors learned in residency persist over the long term, there is no reason to assume that they are unlike other complex behaviors of physicians. In this context, then, the lack of attention to referrals as an explicit and formal part of the curriculum in these residencies is an area for development.

What would the ideal “referral curriculum” consist of? Figure 2 outlines key aspects of the referral process and illustrates the possible curricular targets. We believe

Table 2: Association of Factors in Four Domains With Specialty Referral Rate Less Than the Median Rate of the Sample*

Factor		Yes	No	% with referral rate < median	n	P Value (χ^2)
Curriculum						
Curriculum on referral process	Yes	33	3	.49		
	No	57	7			
Curriculum on referral appropriateness	Yes	67	3	.49		
	No	43	7			
Formal referral review process						
For residents	Yes	20	5	.06		
	No	80	5			
For mid-level providers	Yes	100	1	.24		
	No	38	8			
Use of referral data						
To monitor process internally	Yes	50	6	1.00		
	No	50	4			
To give feedback	Yes	0	2	.11		
	No	63	8			
To track trends	Yes	67	3	.49		
	No	43	7			
To monitor process externally	Yes	33	3	.49		
	No	57	7			
For formal reporting to institution	Yes	67	3	.49		
	No	43	7			
Process in place to audit referrals	Yes	50	2	.81		
	No	40	5			
For report cards	Yes	100	1	.23		
	No	43	7			
Faculty preceptors						
> median number of internal preceptors	Yes	75	4	.12		
	No	33	6			
> median total number of preceptors	Yes	40	5	.53		
	No	60	5			

* n refers to the number responding "yes" or "no" for each factor; % is the percentage of n with referral rates below the sample median.

that a starting point should be the good of the patient, meaning appropriateness of referrals, with a bias toward taking care of as much as possible within the patient-centered medical home. Beyond this general stance, our data and experience suggest four tactics: first, at

the level of precepting, explicit guidelines and formal review for referrals may be appropriate, particularly for advanced practice providers.

If implemented, residents will then need to learn skillsets to manage this process in future practice. Second, preceptor development and

tracking will be important. Our data, with its relatively low number of residencies, were unable to show that experience of preceptors influence the rate of referrals, however did show a potential relationship between type of preceptor and referral rates. There may be variable practice patterns between faculty preceptors who primarily see patients within residency practices versus those who work in community practices. Whether primary practice environment affects faculty precepting around referrals is a question worth future study. Our data suggest a third area of focus should be developing some degree of "formal curriculum" within core didactics that address appropriateness of referrals. Didactic curricula vary greatly across residencies. When and how to incorporate referral curricula is an appropriate topic for discussion and debate. Several programs reported embedding discussion about referral appropriateness in major disease topic didactics. This may be a reasonable approach. Fourth, our data suggest that providing regular feedback to residents about the volume and appropriateness of their referrals may impact referral rates. Scorecards, like other comparative data including clinical quality, may drive physician behavior change more than other interventions. How to provide this feedback efficiently yet with adequate frequency is challenging operationally.

Our findings suggest a number of fruitful areas for further work. First, in order to develop impactful curricula we will need to further explore and describe referral patterns to common subspecialties and develop best practices. Second, among program directors and residency faculty, we should define the goals of a curriculum to address what appropriate referrals mean for different clinical problems and we should develop guidelines to best manage the consultation and referral process. Third, in the spirit of family medicine for America's Health,¹⁶ we should debate what the right rate of referrals is. A

Figure 1: Baseline Subspecialty Referral Rates of 13 Collaborative Residency Programs

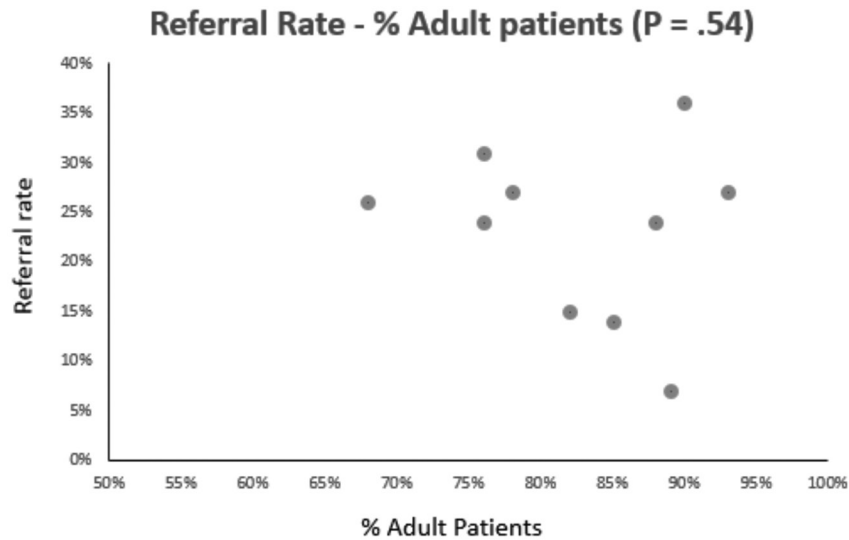
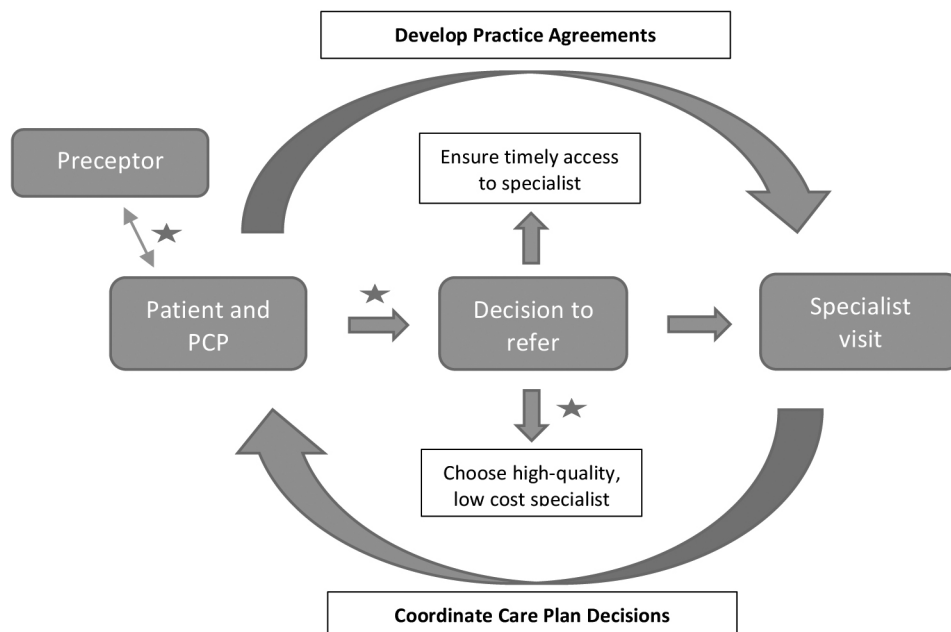


Figure 2: Targets for Interventions: A Schematic of the Referral Process



Stars represent potential points to implement formal review of referral.

first step is agreeing upon a definition of denominator, along with the attributes necessary for risk adjustment, such as age, RAF (risk adjusted factor) score, comorbidities, and payer status. Once we have the best estimates of rates we then need to

address appropriateness. We do not know what the right rate is; however, it is important that the primary care of the future continue to refer patients who need referral and adjust scope of primary care practice for those who do not. If we can define

these factors we can then evaluate effectiveness of a curricula designed to address the referrals process.

In conclusion, appropriate referrals are a foundation for implementing the triple aim. This is particularly true with the

consolidation of health networks and increasing attention and focus on the health of a population. The wide variation of referral rates among these primary care residencies, along with the lack of formal attention on how to teach referrals suggest a major opportunity to improve primary care residency training.

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