

TITLE:

International Medical Graduates in Family Medicine: An Examination of Professional Characteristics and Attitudes

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ABSTRACT:

Background: The number of International Medical Graduates (IMGs) entering Family Medicine in the United States has steadily increased since 1997. Previous research has examined practice locations of these IMGs and their role in providing care to underserved populations. To our knowledge, research does not exist comparing professional profiles, credentials, and attitudes among IMG and USMG physicians. The objective of this study is to determine whether differences exist between International Medical Graduate (IMG) and United States Medical Graduate (USMG) family physicians in regard to personal and professional characteristics and attitudes that may have implications for the health care system resulting from the increasing numbers of IMGs in Family Medicine in the United States.

Methods: This is a secondary data analysis of the 1996-1997 Community Tracking Study (CTS) Physician Survey comparing 2360 US medical graduates and 366 international medical graduates who were nonfederal allopathic or osteopathic family physicians providing direct patient care for at least 20 hours per week.

Results: Compared to USMGs, IMGs were older ($p<0.001$) and practiced in smaller ($p=0.0072$) and younger practices ($p<0.001$). Significantly more IMGs practiced in metropolitan areas versus rural areas ($p=0.0454$). More IMG practices were open to all new Medicaid ($p=0.018$) and Medicare ($p=0.0451$) patients, and a greater percentage of their revenue was derived from these patients ($p=0.0020$ and $p=0.0310$). Fewer IMGs were board certified ($p<0.001$). More IMGs were dissatisfied with their overall careers ($p=0.0190$). IMGs and USMGs did not differ in terms of self-rated ability to deliver high quality care to their patients ($p=0.4626$). For many of the clinical vignettes, IMGs were more likely to order tests, refer patients to specialists, or require office visits than USMGs.

Conclusions: There are significant differences between IMG and USMG family physicians' professional profiles and attitudes. These differences merit further exploration since increasing numbers of IMGs in family medicine residencies presages a growing number of IMGs practicing family medicine in the United States.

BACKGROUND:

International Medical Graduates (IMGs) comprised 20.8% of the Family Physician workforce in 1995.¹ In 2003, this number increased to 22.1% and is expected to continue to rise given the large increase of IMGs entering Family Medicine residency programs.¹ Historically, Family Medicine has a smaller proportion of IMGs entering residency training than other primary care specialties. This relationship is changing as IMGs increasingly filled Family Medicine residency positions not selected by United States Medical Graduates (USMGs), particularly those vacant after the annual Match.² In the 2003 Match, 31.4% of PGY-1 positions available in Family Medicine Residencies were filled by IMGs, an increase by 102 positions from the

previous year.³ On July 1, 2003, IMGs comprised 37.3% of first year Family Medicine residents compared to 14.7% in 1998.³ This trend continued in 2004 with IMGs filling 32.6% and 38.4% of PGY-1 Family Medicine positions in March and July, respectively.⁴ This rise is unique to Family Medicine as the number of IMGs entering other primary care fields has remained relatively stable over the past eight years.⁵ Earlier research documented that certain residency programs have become "dependent" on IMGs who occupy most or all of their positions.^{2,6} It is possible that differences in training backgrounds may translate to important differences in the practice of medicine relating to issues such as health care costs and access to care. It is important to consider what, if anything, this influx of IMGs might portend for the future of Family Medicine and health care in the United States.

IMG's geographic and specialty distributions, their contribution to meeting the needs of the medically underserved, and the value of Conrad-20 and other visa waiver programs that integrate them into the US physician workforce have been examined in past studies.^{7,8,9} A few studies have focused on IMGs performances at the residency training level.¹⁰ Previous research has neither described the attributes and influences of IMG medical practices, nor characterized IMGs professional credentials and attitudes beyond the residency level in Family Medicine.

In this paper, we examine personal, professional and practice characteristics and attitudes of IMG and USMG family physicians in order to provide insight into practice differences that may impact the health care system. We use data from a nationally representative survey collected in 1996-1997, a time when major increases in the proportion of IMGs in Family Medicine residency training began, to identify differences that existed at that time that may warrant further investigation. We compare physician-reported personal, professional, and practice characteristics, attitudes regarding clinical care, assessments of various influences on the delivery of medical care, referral patterns, and responses to clinical vignettes between the two groups. Beyond forming a baseline comparison and characterization for future analyses, this analysis highlights findings that may have implications for the health care system as a whole resulting from the increasing numbers of IMGs in Family Medicine in the United States.

METHOD:

Data Source:

Data used in this study were collected through the Community Tracking Study (CTS) Physician Survey, a project of the Center for Studying Health System Change in Washington, D.C., and obtained from the Inter-University Consortium for Political and

Social Research (ICPSR) in Ann Arbor, Michigan.¹¹ The CTS is a biannual survey sponsored by the Robert Wood Johnson Foundation in order to study changes in the health care system and their impacts on individuals. The sample frame consisted of nonfederal M.D.s and D.O.s who provided direct patient care for at least 20 hours per week. The 1996-1997 CTS is the most recent source of a nationally representative sample containing special provisions to examine practice characteristics and tendencies in addition to the responses to twelve clinical vignettes. Primary care physicians were over-sampled and of the 2726 Family Physicians who participated, 2360 were USMGs and 366 were IMGs. Residents and fellows were not surveyed. The overall response rate was 65% and the response number to each individual item is listed in each table. The CTS does not identify the specific response rates between IMG and USMG participants.

Study Variables:

We compare responses to survey items between IMG and USMG Family Physicians. The CTS defined International Medical Graduates as graduates of medical schools outside of the United States, Canada, and Puerto Rico. The CTS also included the responses from general practitioners in the Family Physician group. We examined several survey items relating to personal and professional characteristics including age, years in practice, net income and board certification status. We assessed various practice characteristics including practice location (large metro, small metro, non-metro as defined by the 1995 US Census), practice type (solo or two physicians, group practice, health maintenance organization (HMO), hospital based, medical school, other), net income, and percentages of income from various sources (Medicare, Medicaid, HMO, bonuses). We also compared the number of new Medicare and Medicaid patients each physician was accepting into his or her practice.

The survey items queried physician's agreement with statements regarding clinical care using a five point Likert scale ("disagree strongly", "disagree somewhat", "neither agree nor disagree", "agree somewhat", or "agree strongly"). In order to compare each group, we eliminated the "neither agree nor disagree" responses and collapsed the remaining groups into two response groups: "agree" or "disagree." The physicians were similarly asked about career satisfaction ("Thinking very generally about your overall career in medicine, would you say that you are currently very satisfied, somewhat satisfied, somewhat dissatisfied, very dissatisfied, or neither satisfied or dissatisfied?"). These responses were collapsed to "dissatisfied" or "satisfied" for our analysis.

We compared survey items that assessed various influences on the physician's practice of medicine. These items include the effects of using computers to obtain patient data and treatment guidelines, utilizing preventive treatment reminders and formal written guidelines, and the effects of practice profile results and patient satisfaction surveys.

In order to compare referral patterns among physicians, we analyzed responses to survey items regarding the number of patients the physicians referred to specialists, the complexity of those patients they did not refer to specialists, and the complexity of medical conditions the physicians felt specialists expected them to care for without referral. These survey items asked each physician to state whether each item had "decreased a lot", "decreased a little", "stayed the same", "increased a little", or "increased a lot" over the previous two years.

The 1996-1997 CTS contained twelve clinical vignettes that queried physicians about medications, tests and referrals they would order for various clinical scenarios.

Analytic Strategy:

USMG and IMG practice characteristics, professional attitudes, and satisfaction were contrasted using chi-square and t-tests. SUDAAN software, version 8.0 (Research Triangle Institute, Research Triangle Park, NC) was used for statistical comparisons and making national estimates. SUDAAN adjusted variance due to nonresponse and CTS survey design complexities. Statistical significance was set at p values less than 0.05.

RESULTS:

Of the 2726 Family Physicians surveyed, 2360 were USMGs and 366 were IMGs. We found that IMGs were older than USMGs but significantly more likely to have been in practice for fewer years (Table 1). IMGs were more likely to practice in metropolitan areas than in non-metropolitan areas with 82% of IMGs in metropolitan areas compared to 75% of USMGs ($p=0.0454$). A greater percentage of IMGs were full owners of their practices and more often in solo or two physician groups. Only 67% of IMGs were board certified compared to 87% of USMGs ($p<0.001$). More IMGs were accepting all new Medicare (67% vs. 60%, $p=0.0451$) and Medicaid (49% vs. 40%, $p=0.0018$) patients than USMGs. They also derived a greater percentage of their revenue from Medicare and Medicaid than their USMG counterparts. IMGs served as "gatekeepers" and were required to provide permission to see specialists for a greater percentage of their patients than USMGs. Differences

between IMGs and USMGs regarding net income, hours in direct patient care, percentage of revenue from managed care, and percentage of income from bonuses were not significant (data not shown).

IMGs were more likely to report having adequate time to spend with patients (73% vs. 66%, $p=0.0041$) and being able to develop continuing patient relationships (83% vs. 78%, $p=0.0096$) than USMGs, yet more IMGs were dissatisfied with their overall medical careers (20% vs. 16%, $p=0.0190$) than USMGs (Table 2). There were no significant differences between IMGs and USMGs regarding perceived ability or freedom to provide high quality care, to communicate with specialists, and to make clinical decisions without reducing income. IMGs reported that preventive treatment reminders, formal written guidelines, and patient satisfaction surveys had larger influences on their practice of medicine than USMGs (data not shown). There were no significant differences between IMGs and USMGs on the effects of using computers on obtaining patient data and treatment guidelines and the effects of practice profile results (data not shown). Small but significant differences existed between IMGs and USMGs with regard to referral patterns, however, no meaningful trends were identified (data not shown).

The responses to the twelve clinical vignettes are listed in Table 3. For many clinical scenarios, IMGs were more likely to order tests, refer patients to specialists, or require office visits than USMGs.

DISCUSSION:

This study suggests that IMGs and USMGs who practice Family Medicine differ in important ways. Professionally, fewer IMGs are board certified compared to USMGs. Their practices differ from those of USMGs in terms of practice location and service of the Medicare and Medicaid populations. Significantly fewer IMGs report being overall satisfied with their medical careers than USMGs. Furthermore, subtle differences exist between the groups in regards to patient referral patterns and in their responses to several clinical vignettes. These differences, if they continue to exist, may impact important aspects of the health care system, particularly access to care and health care utilization and costs.

Fewer IMGs are board certified than USMGs. The CTS survey data do not allow us to ascertain the etiology of this profound difference. Prerequisites for becoming board certified in Family Medicine include unlimited licensure to practice medicine, completion of a three-year residency program in Family Medicine, with the last 2 years being at the same location, and a passing score on the American Board of Family Practice Board Certification Exam. Physicians surveyed in this study were practicing medicine prior to the implementation of the Clinical Skills Assessment (CSA) requirement for IMGs to enter US

residency programs. This requirement was implemented by the Educational Commission for Foreign Medical Graduates (ECFMG) in July 1998 to evaluate IMGs clinical and communication skills.¹² Since the implementation of the CSA, the United States Medical Licensing Exam (USMLE) Step 1 and 2 passage rates of IMGs receiving ECFMG certification have increased.¹² We may also see increases in the percentage of Board Certified IMG family physicians in the future with this new requirement. Recent evidence suggests that board certification and maintenance of certification are indicators of physician quality.¹³ Furthermore, the public places a high value on board certification and would potentially change behavior to ensure their physician is board certified.¹³ The difference between IMGs and USMGs board certification status is important as more emphasis is being placed on this credential.

Significantly more IMG Family Physicians are practicing in more urban areas as opposed to rural areas. Previous studies found that IMGs comprise a larger portion of the primary care physician work force in rural areas with physician shortages than USMGs, however these studies lumped primary care as a single workforce.^{8,9} Our study and another national study both reveal that IMGs in Family Medicine, the primary care specialty most likely to distribute like the US population, are less likely to practice in rural areas than USMGs.⁷ Although a greater percentage of new physicians entering Health Professional Shortage Areas (HPSAs) are IMGs, the majority of these physicians are temporary visa holders.¹⁴ It is uncertain if this commitment to the underserved is long-term. Furthermore, previous research has revealed that IMGs are more likely to practice in markets with higher concentrations of established IMG physicians.¹⁵ If this trend continues, one may expect IMGs to continue to locate in urban versus rural practices. The CTS physician survey did not identify HPSAs or visa status, so we were unable to assess the relative placement of IMGs and USMG family physicians in regard to treating the underserved or their long-term commitment to serving these areas.

More IMG practices are open to all new Medicaid and Medicare patients, and a greater percentage of their revenue is derived from these patients. This trend has also been established in comparing IMGs and USMGs in psychiatry.¹⁶ The greater involvement of IMG family physicians in these programs suggests both a greater dependence on publicly financed programs and the important role IMG physicians play in providing access to care for Americans covered by these federal programs.

More IMGs are dissatisfied with their overall medical careers. Previous studies have linked career dissatisfaction with a perceived inability to provide high quality care.¹⁷ Although more IMGs in this study are dissatisfied than USMGs, they report no less ability to deliver high quality care to their patients. Furthermore, more IMGs report having adequate time and ability to

develop continuing relationships with their patients than their USMG colleagues. Given the link between career satisfaction and quality of care, it is important to consider what potentially increasing the percentage of dissatisfied physicians means for the future of Family Medicine and the patients they serve. While it is beyond the scope of this study, it is important to further examine this difference in order to discern potential etiologies and solutions to improve physician satisfaction.

In reviewing the clinical vignettes, there are several situations in which IMGs order more tests, refer more patients or require more office visits than USMGs. These differences were statistically significant for half of the vignettes, however, it is uncertain whether this reflects appropriate care or if the differences were clinically significant. To our knowledge, no research has been published examining the referral patterns and service utilization practices of IMGs and USMG physicians in the United States. This area deserves further examination as there may be important health care cost and utilization effects to consider if differences between the groups do exist.

As previously stated, it is important to note that there are no significant differences between IMGs and USMGs regarding their self-rated ability to deliver high quality care to their patients. A greater percentage of IMGs feel that they have adequate time to spend with their patients and that they are able to develop continuing relationships with them.

There are several limitations to our study. The cross-sectional nature of this study precludes our ability to demonstrate causal relationships between variables. Reporting error and recall bias are always potentials when examining survey data. Furthermore, the data in this study are subjective reports given by physicians themselves as opposed to objective practice analyses and clinical outcomes. We are also unable to differentiate between IMGs who were born in the United States and those who were foreign-born. Since US-born IMGs and “Fifth Pathway” students account for increasing numbers of PGY-1 Family Practice Residents,³ it would be important to determine if differences exist between this group and their foreign-born counterparts. The linkage of general practitioners with Family Physicians by the CTS may impact some of the results of this paper. Although we know the participants were self-reported Family Physicians or general practitioners, we do not know the primary focus of their practices (traditional practice, emergency physician, occupational medicine, etc). In addition, the clinical vignettes were designed by the CTS and their validity is untested. We include them because they offer a unique viewpoint into clinical decision making which is often not available in data sources. Our data were collected in 1996 and 1997. This is the most recent nationally representative data source which oversampled primary care physicians and examined the specific clinical information we needed, including the clinical vignettes. In addition, this time frame allows us to obtain a snapshot of

Family Practice physicians at the time when USMG interest in family medicine was peaking and the number of IMGs entering the field was poised to increase. IMGs were just 13.4% of the CTS sample, less than their percentage in the overall family medicine workforce. We can't know whether there was a disproportionately lower response rate from IMGs or if IMGs were a smaller proportion of the workforce within the sampled areas. While this may affect external validity, we don't anticipate that nonrespondent IMGs would be more satisfied, or less likely to serve Medicare and Medicaid patients. The characteristics reported in this study may have changed over the past eight years.

CONCLUSIONS:

At a time when Family Medicine began a new trend of becoming more populated with IMGs, we found important differences between the professional and clinical attributes and attitudes of IMG and USMG family physicians which may impact the health care system. Unlike previous studies, the practice locations of the IMG family physicians in this study were more urban than their USMG peers. IMG family physicians tend to own their practices more often, practice in smaller groups, and are more open to serving Medicare and Medicaid patients than their US trained colleagues. The lower rate of board certification among IMG physicians is important to consider as more emphasis is being placed on this credential. There were small but significant differences in career satisfaction and referral patterns which are worth exploring both to understand whether they continue to be true, and to understand if they may change the scope and practice of family medicine. Given the United States relies on Family Physicians to serve a large portion of its population and the persistent lack of interest in Family Medicine by US medical students, we need to further understand these differences and how they relate to the health care system as a whole.

ABBREVIATIONS: IMG—International Medical Graduate; USMG—United States Medical Graduate; CTS—Community Tracking Study; ICPSR—Inter-University Consortium for Political and Social Research; HMO—Health Maintenance Organization; HPSA—Health Professional Shortage Area; CSA—Clinical Skills Exam; ECFMG—Educational Commission for Foreign Medical Graduates; USMLE—United States Medical Licensing Exam

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AUTHORS' CONTRIBUTIONS: ALM participated in study design, data collection, and manuscript development and revision. RLP participated in study design and manuscript development and revision. FM participated in critical revision of

the manuscript. LAG participated in study design and manuscript development and revision. GEF participated in study design, data collection and performed the statistical analysis. All authors read and approved the final manuscript.

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Table 1: Personal, Professional and Practice Characteristics of IMG and USMG Family Physicians

	USMGs N=2360 n (%)*	IMGs N=366 n (%)*	p value**
Age (n=2591)			
<35	299 (13)	13 (3)	<0.001
35-44	949 (43)	106 (33)	
45-54	588 (26)	117 (33)	
55-64	251 (12)	63 (18)	
>65	163 (7)	42 (13)	
Years in Practice (n=2726)			
Under 6	449 (19)	81 (23)	<0.001
6-10	504 (22)	51 (12)	
11-20	830 (35)	121 (34)	
21-30	279 (12)	56 (15)	
31-40	234 (10)	43 (12)	
41+	64 (3)	14 (4)	
Location (n=2726)			
Large metro >200K	1955 (70)	322 (76)	0.0454
Small metro <200K	45 (5)	7 (6)	
Non-metro area	360 (25)	37 (18)	
Ownership Status (n=2726)			
Full Owner	733 (32)	150 (43)	<0.001
Part Owner	472 (21)	52 (14)	
Not an Owner	1155 (48)	164 (43)	
Practice Type (n=2726)			
Solo or 2 Physicians	829 (37)	169 (47)	0.0072
Group ≥ 3 Physicians	585 (24)	76 (21)	
Health Maintenance Organization	154 (5)	27 (5)	
Medical School	89 (4)	11 (4)	
Hospital Based	388 (17)	46 (13)	
Other	315 (13)	37 (9)	
Board Certification Status (n=2707)			
Board Certified	2055 (87)	243 (67)	<0.001
Board Eligible Only****	169 (7)	61 (18)	
Neither	123 (6)	56 (15)	
Accepting New Medicare Patients (n=2726)			
None	222 (9)	27 (9)	0.0451
Some	418 (17)	43 (12)	
Most	339 (14)	51 (12)	
All	1381 (60)	245 (67)	
Accepting New Medicaid Patients (n=2726)			
None	647 (25)	94 (24)	0.0018
Some	591 (25)	67 (18)	
Most	231 (10)	35 (9)	
All	891 (40)	170 (49)	
Percentage of Revenue from Medicare (n=2726)			
	Mean (SE) 27.54 (0.48)	Mean (SE) 30.62 (1.46)	0.0310***
Percentage of Revenue from Medicaid (n=2726)			
	Mean (SE) 13.90 (0.48)	Mean (SE) 17.82 (1.31)	0.0020***
Percentage of Patients for Whom Physician Serves as Gatekeeper (n=2726)			
	Mean (SE) 36.72 (0.94)	Mean (SE) 43.67 (2.34)	0.0018***

*Unweighted number of survey respondents and weighted percent of Family Physicians. Ns vary because not all survey items were answered by each physician.

** Chi-Square

*** T-Test

****Although “Board Eligible” is not an officially recognized status by the ABFM, it is one of the responses offered by the CTS.

USMG=United States Medical Graduate, IMG=International Medical Graduate, SE=Standard Error

Table 2: Attitudes Regarding Clinical Care of IMG and USMG Family Physicians

	USMGs N=2360 n (%) [*]	IMGs N=366 n(%) [*]	p value ^{**}
“I have adequate time to spend with my patients during typical office/patient visits.” (n=2664)			
Disagree	813 (34)	102 (27)	0.0041
Agree	1492 (66)	257 (73)	
“It is possible to maintain the kind of continuing relationships with patients over time that promote the delivery of high quality care.” (n=2651)			
Disagree	559 (22)	63 (17)	0.0096
Agree	1738 (78)	291 (83)	
“It is possible to provide high quality care to all of my patients.” (n=2679)			
Disagree	442 (19)	73 (18)	0.4626
Agree	1875 (81)	289 (82)	
“I have the freedom to make clinical decisions that meet my patients needs.” (n=2685)			
Disagree	332 (14)	61 (17)	0.1677
Agree	1991 (86)	301 (83)	
“The level of communication I have with specialists about the patients I refer to them is sufficient to ensure the delivery of high quality of care.” (n=2679)			
Disagree	276 (11)	46 (12)	0.5777
Agree	2045 (89)	312 (88)	
“I can make clinical decisions in the best interests of my patients without the possibility of reducing my income.” (n=2601)			
Disagree	447 (19)	74 (21)	0.5571
Agree	1800 (81)	280 (79)	
Overall Career Satisfaction (n=2678)			
Dissatisfied	382 (16)	79 (20)	0.0190
Satisfied	1978 (84)	287 (80)	

*Unweighted number of survey respondents and weighted percent of Family Physicians. Ns vary because not all survey items were answered by each physician.

** T-Test

USMG=United States Medical Graduate, IMG=International Medical Graduate

Table 3: Responses to Clinical Vignettes of IMG and USMG Family Physicians

Clinical Vignette	USMGs N=2360 Mean (SE)	IMGs N=366 Mean (SE)	p value*
% 50 y/o Males prescribed oral agents for total cholesterol of 240, LDL of 150 and HDL of 50 after 6 months of diet therapy and no other cardiac risk factors (n=2726)	21.60 (0.87)	22.92 (1.71)	0.4533
% 60 y/o Males referred to urology for moderate BPH symptoms without signs of renal disease or cancer (n=2726)	11.65 (0.55)	15.52 (1.77)	0.0276
% 50 y/o Males with 1 month history of exertional chest pain referred to Cardiology after an abnormal stress test (n=2726)	47.20 (1.15)	50.93 (2.80)	0.1791
% 35 y/o Males ordered MRI for acute low back pain with new left foot drop (n=2726)	33.39 (0.90)	39.58 (1.97)	0.0036
% Asymptomatic, Male, Caucasian patients > 60 y/o without family history of prostate cancer and normal digital rectal exams who are ordered PSA test (n=2726)	37.31 (1.34)	42.57 (2.64)	0.0301
% 40 y/o monogamous, Female patients with 2 days of vaginal itching and thick white discharge without abdominal pain or fever who are required an office visit (n=2726)	21.84 (0.95)	34.91 (2.61)	<0.001
% 10 y/o Males with primary enuresis with negative work-up and failure of water restriction and environmental measures who are prescribed DDAVP (n=2726)	26.23 (0.84)	31.98 (2.50)	0.0265
% 10 y/o Males with 2 day history of sore throat and fever who are required an office visit (n=2726)	31.74 (1.03)	25.92 (1.99)	0.0084
% 10 y/o Females with fever, tachypnea and right-basilar rales who are ordered Chest X-Rays (n=2726)	23.40 (1.01)	27.56 (2.22)	0.0574
% 24 month old Females with history of 6 resolved episodes of suppurative otitis media in past year with normal hearing and failure of prophylactic antibiotics who are referred to ENT for PE tubes (n=2726)	22.94 (0.87)	22.60 (1.97)	0.8816
% Full-term, 6 week old children given sepsis work-up (CBC, sterile urine and blood cultures) for a fever of 101 (n=2726)	29.54 (0.91)	26.63 (2.25)	0.2458
% 4 y/o children with eczema and asthma which is worsening despite inhaled corticosteroids who are referred to an allergist (n=2726)	29.42 (0.97)	28.40 (2.31)	0.6605

* T-Test

USMG=United States Medical Graduate, IMG=International Medical Graduate, SE=Standard Error