International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000138
Article Type:	Research
Date Submitted by the Author:	08-Apr-2011
Complete List of Authors:	Chen, Peggy; Yale University School of Public Health, Health Policy and Administration Nunez-Smith, Marcella; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, General Internal Medicine Berg, David; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, Psychiatry Gozu, Aysegul; Franklin Square Hospital, Internal Medicine Curry, Leslie; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Public Health, Health Policy and Administration
Subject Heading:	Health service research
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE

International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Chen PG,[1] Nunez-Smith M,[2,3] Berg D,[1,4] Gozu A,[5] Rulisa S,[6, 7] Curry LA,[1,2]

Chen PG: Division of Health Policy and Administration, Yale University School of Public Health, 47 College Street, New Haven CT 06520, United States, Post-doctoral fellow.

Nunez-Smith M: Section of General Internal Medicine, Yale University School of Medicine, PO BOX 208025, New Haven, CT 06520-8025, Assistant professor.

Berg D: Department of Psychiatry, Yale University School of Medicine, 300 George Street, New Haven, CT 06511-6624, Clinical professor.

Gozu A: Department of Internal Medicine, Franklin Square Hospital, 9105 Franklin Square Drive, Suite 312, Baltimore MD 21237, Director Internal Medicine Residency Program.

Rulisa S: Department of Clinical Research, University Teaching Hospital of Kigali, 1024 Rue de la Paix, PO Box 655, Kigali City, Kigali, Rwanda, Head of Clinical Research.

Curry L: Division of Health Policy and Administration, Yale University School of Public Health, PO BOX 208034, New Haven, CT 06520-8034, United States, Research scientist.

Corresponding author: Peggy Guey-Chi Chen, Department of Health Policy and Administration, Yale University School of Epidemiology and Public Health, 47 College Street; Room 104; New Haven, CT 06520; Tel 203.737.3556. peggy.chen@yale.edu.

Competing Interests

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that PC, MNS, DB, AG, SR and LC have no financial relationships that might have an interest in the submitted work; and PC, MNS, DB, AG, SR and LC have no non-financial interests that may be relevant to the submitted work.

Data sharing

Study protocol, interview guide and code structure available from corresponding author at peggy.chen@yale.edu. No additional data available. The authors were required by the Yale Human Investigations Committee to destroy all data following final analysis in order to protect the identities of the participants.

Funding

Funding for this study was provided by the Robert Wood Johnson Clinical Scholars Program, the Robert Wood Johnson Foundation and the Agency for Healthcare Research and Quality (T32 HS 017589-02T32). The research team was independent from the funders, who had no role in the collection, analysis, and interpretation of data; in the writing of the report; or the decision to submit the article for publication.

Article focus

- International medical graduates (IMGs) play a significant role in the primary care workforce in many nations, including the United States.
- Prior literature on physician migration has largely considered the physician migrate as an isolated event, involving decision points such as financial pressures in home country or expanded training opportunities in the US.
- Multi-faceted aspects of experience, including the effects of institutional, workplace and workforce policies that contribute to this complex phenomenon have not been included in the current discussions surrounding the global health workforce.

Key messages

- The causes of physician migration are not isolated from one another, but rather, that migration results from a confluence of experience and circumstance and affects IMGs throughout their careers.
- The perspectives of IMGs can contribute to development of a comprehensive understanding of the causes and consequences of physician migration which may lead to the development of effective and appropriate solutions for global health workforce challenges.

Strengths and limitations of this study

Strengths

- Participants were diverse with regard to age, specialty, geographic regions of origin and years of clinical experience in the US.
- The study utilized a number of recommended strategies to insure rigor.

- High participation rate suggests that this is an issue IMGs are motivated to discuss despite the potentially personal and sensitive nature of the topic.

Limitations

- Experiences of IMGs in other specialties may differ.
- Study was geographically circumscribed to metropolitan regions. Other regions, particularly rural areas, may present a substantially different environment.

Abstract

Objectives

International medical graduates (IMGs), defined as physicians who attended medical school outside the United States (US) or Canada, comprise approximately 25% of the US physician workforce. Amidst the policy debate surrounding physician migration, the perspectives of IMGs who have been through the process have been largely absent. The authors sought to include these perspectives to increase understanding of physician migration and generate creative approaches for addressing the challenges facing global health systems.

Design

Qualitative study utilizing in-depth, in-person interviews and a standardized interview guide. A diverse, purposeful sample of IMGs (n=25) from limited resource nations (defined as having ≤ 2 physicians per 1,000 population) were recruited.

Results

Our focused analysis revealed four recurrent and unifying themes reflecting the perspectives of IMGs in the United States on physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Conclusion

The perspectives of IMGs who have migrated to the US are an important addition to the ongoing discussion surrounding the global health workforce. In particular, our findings

highlight the effects of workforce policies which are often developed and discussed in abstraction, but have real, measurable impacts on the lives of individuals. Future efforts to address physician migration will need to acknowledge the immediate needs of the health workforce as well as the long-term needs of individuals within health systems.

Background

Physician migration from low-income to high-income nations has been a concern since large-scale migration began several decades ago.[1, 2] The migration of physicians, most of whom receive free or low-cost education in their home countries, exacts a substantial toll on both the financial and human resources of home countries,[3-6] while exacerbating existing health workforce shortages.[7, 8] The United States, United Kingdom, Canada and Australia are the destination countries for many physicians from limited resource nations, accounting for between 20 and 30% of the physician workforce in these nations.[1, 9, 10] In the United States, international medical graduates (IMGs), defined as physicians who attended medical school outside the US or Canada, comprise approximately 25% of the physician workforce[11] and play an important role in primary care,[12-16] particularly for vulnerable populations[17, 18] and care in physician shortage areas.[17, 19, 20]

The policy debate surrounding physician migration in the US is multi-faceted, with recommendations to limit physician migration [21-33] weighed against the decisions of individual physicians[34, 35] and ongoing gaps in the US physician workforce.[36-38] Prior work indicates that the experiences of immigrant physicians in the US are complex, with the effects of being an IMG extending throughout one's career.[39] Existing research on physician migration has largely approached the motivation for migration as a single decision point[1, 21, 40] resulting from financial pressures in home country[41] or the availability of expanded training opportunities in the US.[42] However, extant literature has not engaged IMGs themselves on specific motivations for

physician migration and reasons for remaining in the US, nor captured the multi-faceted aspects of experience, including institutional, workplace and workforce policies, that contribute to this complex phenomenon.

Integrating the perspectives of IMGs who have migrated and subsequently chosen to remain in the US is vital to the development of a comprehensive understanding of the causes and consequences of physician migration. They may also improve understanding of the effects of workplace and workforce policies on the individuals they target, and result in creative approaches for addressing workforce challenges facing both domestic and global health systems. In this analysis, we sought to characterize the experiences of IMGs from limited resource nations currently practicing in the US with a focus on their perspectives on the phenomenon of physician migration.

Methods

We chose a qualitative design because this approach is optimal for capturing the essential aspects of a phenomenon from the perspective of study participants.[43, 44]

Study Design and Sampling

We conducted one-on-one interviews[45] with a purposeful sample[44] of non-US born IMG physicians who completed residency training in the US and were currently in outpatient

primary care practice (family medicine, internal medicine and paediatrics). Physicians were included if their home country met our definition of a limited-resource nation: countries identified by the World Health Organization as having < 2 physicians per 1,000 individuals in the population (the United States has 2.56 physicians per 1,000 individuals).[46]

We identified potential participants through: the American Medical Association's IMG Section roster; state licensure board databases for Connecticut, New York and New Jersey; and department chairs at regional institutions. Recruitment and data collection were conducted until thematic saturation[44] was achieved. The Human Investigation Committee at Yale University School of Medicine approved the research protocol. All participants provided verbal informed consent.

Data Collection

One researcher (PC), a paediatrician, a second-generation immigrant and member of an ethnic minority group, conducted all in-person interviews.

The interview guide (Text Box) consisted of open-ended, 'grand tour' questions[45, 47] including: "Please share your thoughts on physician migration either on a personal level or from a population level." In many cases, participants discussed issues related to physician migration spontaneously throughout the interview. Probes were used to encourage clarification and elaboration on specific sources of support. Probes are not standardized, and their use is highly

contextual for each interview.[44] Interviews were audio-taped, professionally transcribed and reviewed to ensure accuracy. Interviews lasted an average of 45 minutes and participants completed an anonymous demographic survey at the conclusion of the interview.

Analysis

Analysis was performed by a 5-person multidisciplinary team including a paediatrician, family physician, internists (including an IMG), an organizational psychologist, and health services researchers each with training and expertise in qualitative methods. We developed a code structure in stages and in accordance with principles of grounded theory,[48] using systematic, inductive procedures to generate insights grounded in the views expressed by study participants.

First, the full research team independently coded three transcripts, meeting to negotiate consensus over differences in independent coding. We developed codes, or tags to classify data inductively,[49] drafting an integrated code structure.[48] We used the constant comparison method[48] to insure that emergent themes were consistently classified, expand on existing codes, identify novel concepts and refine codes. Second, a core team of three analysts (PC, SB and AG) independently coded all remaining transcripts and reconciled differences through consensus; the full team participated in analysis meetings and finalized a comprehensive code structure capturing all data concepts related to physician migration. PC then systematically applied the final code structure to all transcripts.

At several stages throughout the iterative process of data collection and analysis, we conducted participant confirmation[43, 44, 48] in which summary results were distributed to participants to confirm that the themes being developed accurately reflected participants' experience. We used qualitative analysis software (ATLAS.ti 5.0, Scientific Software Development, Berlin, Germany) to facilitate data organization and retrieval.

Results:

Demographics

Our final sample consisted of 25 IMG physicians, with a 93% participation rate (Table 1). We achieved broad representation with regard to age, specialty, geographic region of origin and years of clinical experience in the US. The mean number of physicians per 1,000 of the population in participants' home country was 0.74 (range 0.03-1.88, US=2.56). All respondents were at various stages in the process of seeking permanent residency status or citizenship in the US.

Themes

Our focused analysis revealed four recurrent and unifying themes which reflect the perspectives of IMGs in the United States on physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the

ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Decisions to migrate were pragmatic decisions made in the context of individual circumstance

Participants described their personal decisions to leave their home country as deriving from the particularities of their given situation, such as economic conditions, political environments and opportunities for professional advancement. This family practitioner from East Asia emphasized the difficult economic realities of life at home:

> "*When you are raised in a third world country, your outlook is on survival. It is not on the nebulous concept of, will I deprive my countrymen if I leave. That is a big difference in thinking... Over here, on a resident's salary ... you won't have luxuries, but you won't go hungry... It is a matter of survival... If I could have the same standard of living I have here as I do in [home country] would I prefer to practice in [home country]? Yes.*"

For this internist from the Middle East, the decision to leave home country had been the result of an untenable political situation. This participant also highlighted the trade-offs inherent in migration:

> "*I came [here] because … there was no hope that they were going to turn the country back into a democratic, civilized country. And so America has nothing to do with it. It's not like a magnet that they welcome us and we stayed. It's the condition that we run away from… you're choosing between … worse and worst. Whether you want to go to*

through the culture shock and language shock and all the barriers as … goddamn foreigner, or you want to stay in your country, which you belong to, you were raised in, but have no quality of life… So that is why people run away and come to America."

Similarly, this paediatrician from the Middle East described the decision to migrate as defending a quality of life that had been eroded as a result of conflict at home. Importantly, this participant emphasized the difference between temporary migration, such as for educational purposes, and the more permanent status of immigration.

"*We weren't a starving country. It was one of the oil producers, so we had the good things. Usually as physicians, you live very good, so we didn't have much of physician immigration. Most of the physicians who will go to study… they came back… I personally never thought of leaving the country unless for studying, not for immigration. I [would] never thought of immigration if not for the political situation.* "

This individual continued by calling on home countries and global organizations to create an environment where individuals would not feel the pressure to migrate:

"*We can lead the doctors back towards their countries … [but] then we have to provide for them there. They want to stay, let's help them stay. Most important is to help them develop some middles, like nurses and technicians… having programs to talk about … improving health systems … for doctors who want to stay … even when you bring people [to the US] for training and you make it difficult for them to stay, I think it is okay in a way… but it is not enough... if people want to stay here, they will find a way to stay. And don't fool ourselves. I think you have to look in other ways to keep physicians in their countries by having them be part of a global program to improve that.*"

This paediatrician from sub-Saharan Africa described his own migration in order to pursue professional opportunities that were not easily available at home.

> *"Personally, the reason why I came is to seek knowledge and I could quickly get it here... unlike in [home country] … … you might have to pay somebody … like hanky panky. You can do very good here… play by the rules, pass the exams and graduate…"*

The act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways

Even participants who initially did not plan to remain in the US described how migration had changed them both personally and professionally. Moreover, in many instances, their home countries had also changed in their absence. Participants were thus hesitant to return to home country for logistic, professional and cultural reasons. This internist from sub-Saharan Africa, who had initially migrated because of a civil war at home, described the first trip home after the conflict had ended and his realization that his return home was unlikely.

> *"People would see me … and I would hear oh, he's so American.... You just -- you don't fit in anymore…you can't go back, as they say. It's really true... I [had] wanted the government to fall so I could go back… that happened and yet … it was a big disappointment for me…."*

For this internist from South Asia, migration and working as a physician in the US revealed conditions at home which she had not noticed prior to her migration.

"Professionally, now since I have been practicing… here… when I go back … and see… sometimes maybe the area is not so clean... maybe it is because there is so much demand and there are so many patients and the expenses and everything. They do not have structured medical system... you see all those differences more clearly once you have been here…When I was there, that was all normal and part of it and there was nothing really glaring about it, but now I go back from here and I see it… But that is the way it is."

This family practitioner from Latin America described professional and practice differences that had factored into the decision to remain in the US rather than return home.

"[at home] it is a cash business... you are really just caring or serving the people who can pay you… I've even heard docs [at home] say… don't cure it on the first visit because then … you only get paid once, whereas if you give something that's not going to take care of it… they will come in for a second visit … I don't think I would be able to adapt to that again."

The ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US

Although participants had left their home country for a variety of reasons, all had either completed or were in the process of seeking permanent residency status or citizenship in the US. While all acknowledged their commitment and desire to remain in the US, participants also described ongoing guilt resulting from this decision. For this paediatrician from sub-Saharan

Africa, the struggles stemmed from his perception of being trapped by multiple responsibilities and expectations.

> "*My intention was when I first came over was to… do my residency and go home … but then … after 3 years with all of these immigration problems, no money, you can't go back, you get trapped in the system. There is no going back ... even after acquiring this knowledge, I can't help my people… there are plenty physicians [in the US] who can do the same thing I do … back home there are not many people who can do the same thing I do…*"

Another paediatrician from sub-Saharan Africa believed that his skills were not being effectively used in the US, but acknowledged that there was a trade-off he was making so that his family could live and work in the US.

> "*I'm very much conscious of the fact that I'm working in an area where … there are many, many doctors to take care of the people. In [home country], I could work in an area where … I would be saving some lives every day. That has been a bit of an adjustment, although I always have to just consider my family as a whole… I do look back and … I was …doing more for somebody's life 20 years ago than I do on a daily basis here.*"

This internist from South Asia described a desire, echoed by many participants, to give back to his home country as a form of repayment for education and other investments the country had made in him.

> "*I thought... I should go back to give them back... because I owe them my medical school education. So I ... spoke a couple of times... went to visit a couple of times.*

Almost every year or every other year I go if I get a chance... Even if it's for a week I go there and I try to do as much as I can... I owe this to my country. So that's why I go."

Effects of policies in both home country and in the US occurred at multiple levels

Although participants ultimately made their migration-related decisions based on individual needs and goals, there was a high level of awareness of the downstream effects of various policies at both a local, national and international level. This paediatrician from sub-Saharan Africa noted that, while many physicians at home sought to come to the US for increased educational opportunities, the licensing restrictions in their home countries often meant that many did not seek to return home because of the significant additional commitment of time and energy this would require.

"Strangely, my training …here is not actually good enough to be a paediatrician in [home country]. I'm like a primary care doctor here, so I would be able to work as a general practitioner with an interest in paediatrics, but to be a paediatrician I would have to go back to the hospital and do some more training… until I passed … a national exam … each year, there might only be about 5 or 6 paediatricians qualifying in the entire country…"

This internist from sub-Saharan Africa emphasized the cyclical nature of policies affecting IMGs, noting the numerous changes that had occurred during over 30 years of practice in the US.

"We came [to the US] at a time when there was shortage. You know, you're pampered… And then when the floodgates were opened … it was just alarming … We don't want …

these aliens… like we were from Mars… And then they become too many now. So it's ebb and flow… like everything else."

This internist from the Middle East remarked that workforce-unfriendly policies in home countries were not only depriving home countries of physicians, but leaving behind a potentially less competent workforce.

"*It comes from bad policies … for example [home country] has one of the worst brain drain problems in the world. People are leaving and it becomes a vicious cycle. The more people who are capable leave, the more inept people come into the power which makes the life more miserable for more capable people so the more capable people will leave.*"

Finally, this paediatrician from sub-Saharan Africa, who maintains extensive ties with home country, commented that while many physicians at home migrated to higher-income nations, his home country had, in turn, recruited physicians from lower-income nations.

"*I go back to [home country] every year… We are very much aware of the medical system in [home country] … They lost large numbers of physicians who… went everywhere in the world and [home country] has become a magnet for … physicians from the rest of Africa... So in turn, the vacuum has been filled by the immigration.*"

Discussion

We conducted an in-depth, systematic exploration of experiences of primary care physicians who migrated from their home countries to the US. Our findings indicate that decisions surrounding initial migration to the US were generally based on individual needs and goals and

resulted from a confluence of circumstance in home country. Subsequent decisions to remain in the US were frequently unplanned and unintentional, stemming from changes that result from migration and acculturation, as well as circumstances making return to home country unpalatable or impossible. Finally, despite the emphasis on individual motivations in the initial migration decision, in reflection, participants viewed their decisions in more abstract terms: revealing ongoing struggles with their decisions, opinions on necessary elements for improving the situation in their home countries, and the effect of their migration on the global health workforce.

Our findings should be interpreted in light of the potential limitations of the study. First, we focused on IMG physicians in outpatient primary care specialties because of the concentration of IMGs in these fields. Experiences of IMG physicians in other specialties may differ, particularly in more competitive specialties with fewer IMGs. Additionally, our study was geographically circumscribed to New York, New Jersey and Connecticut, largely metropolitan regions of the country. Other geographic regions, particularly rural areas, may represent a substantially different environment for IMGs. There are also a number of strengths to our study. First, participants were diverse with regard to age, specialty, geographic regions of origin and years of clinical experience in the US. Despite this diversity, there were strong commonalities in participants' experiences and perceptions of physician migration, as reflected in the recurring and unifying themes reported. Second, we utilized a number of recommended strategies to insure rigor: consistent use of an interview guide; audio-taping and independent transcription; standardized coding and analysis; use of researchers with diverse racial/ethnic

and professional backgrounds; an audit trail to document analytic decisions; and participant confirmation in which participants reviewed a summary of the data and endorsed the content of the themes.[43, 44, 60-62] Third, our high participation rate suggests that this is an issue IMGs are motivated to discuss in a research context, despite the potentially personal and sensitive nature of the topic.

To our knowledge, this is the first study to systematically categorize the experiences and perceptions of IMGs who have been part of the physician migration phenomenon. This work presents a comprehensive understanding of the causes and consequences of physician migration beyond the largely isolated push/pull motivations for physician migration that have been previously described.[1, 21, 40-42] The accurate reflections of the voice and perspectives of IMGs are an important addition to ongoing discussions over potential solutions to the global health workforce crisis.[50, 51] Our findings indicate that these discussions must include the role and responsibilities of high-income nations as well as actions on the part of limited income nations themselves in order to arrive at effective strategies for the global health workforce as a whole and the individuals within it. Moreover, our findings highlight the effects of workforce policies on individuals. Such policies are often developed and discussed in abstraction, but have real and measurable impacts on the lives of individuals.

Our findings emphasize the importance of addressing global health workforce shortages from a comprehensive understanding of motivations, while also insuring that those who have migrated are able to continue making substantive contributions to their home countries. Workplace and

workforce policy decisions should be made with consideration of the contexts in which migration decisions are made. While economic and political stability in home countries may ultimately result in the retention of many potential migrants, such stability is the result of slow change over time and must include steps toward building human capital in home countries. In the meantime, a number of policy changes may lessen the impact of physician migration. This includes balancing individuals' need for professional training not available in home country, with the licensure requirements of home country. A uniform standard for principles of education and training may be part of this solution, acknowledging the global nature of the health workforce and enabling personal advancement while enabling the augmentation of human capital at home. Other solutions may include enabling IMG trainees to contribute to the learning processes of physicians in destination countries who seek to work abroad, and to develop partnerships between home country institutions and destination country institutions so that overseas opportunities are not one-off experiences but rather, ongoing opportunities for mutual benefit. Governments of limited income nations should also direct efforts toward human capital by making targeted investments in the health sector, improving working conditions, ensuring opportunities for professional growth, and supporting physicians in providing high quality health care.

Future work should also focus on the perceptions and decision-making processes for physicians who did return to their home countries following training in the US. Such data is not currently tracked and the experiences of this group are generally difficult to capture due to their wide global geographic distribution. In addition, an investigation of limited resource nations

countries in which efforts to curb physician migration have been successful may also help to distil successful strategies that may be applicable in other nations.

Conclusion

In 1994, the International Conference on Population and Development concluded: "the long-term manageability of international migration hinges on making the option to remain in one's country a viable one for all people."[32] Migrating physicians make difficult decisions to leave the countries in which they were born, raised and schooled as the result of a confluence of factors leading participants to believe they lacked a future in their home countries either professionally or personally. Attempts to address physician migration will need to address not only the immediate needs of the health workforce, but also the long-term needs of individuals and health systems. While the road to an ultimate solution may be long, our findings indicate that even small steps toward the end goal may have beneficial effects on the workforce by providing individuals with hope for their futures in their own countries. Such small efforts, taken together over time, can build individuals' faith that health systems in their home countries can evolve over time to support the practice of high quality medicine with good outcomes for all.

Authors Contributions

PC, MNS and LC conceived of and designed the study. PC, MNS, DB, AG, SR and LC contributed to the analysis and interpretation of data. PC, MNS and LC drafted the article. PC, MNS, DB, AG, SR and LC revised the article critically for important intellectual content. PC, MNS, DB, AG, SR and LC provided final approval of the version to be published. All authors, external and internal, had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Acknowledgements

The authors thank Susannah Bernheim (SB) for contributions to data analysis and interpretation; the American Medical Association IMG section for assistance in recruiting; the Educational Foundation for Foreign Medical Graduates for helpful comments; and all physicians who participated in this study.

References

1. Mejía A, Pizurki H, Royston E, World Health Organization. *Physician and nurse migration : analysis and policy implications : report of a WHO study*. Geneva [Albany, N.Y.: World Health Organization ; obtainable from WHO Publications Centre USA]; 1979.
2. Zurn P, Dal Poz MR, Stilwell B, Adams O. Imbalance in the health workforce. *Hum Resour Health.* Sep 17 2004;2(1):13.
3. Mills EJ, Schabas WA, Volmink J, et al. Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime? *Lancet.* Feb 23 2008;371(9613):685-688.
4. Mullan F. The metrics of the physician brain drain. *N Engl J Med.* Oct 27 2005;353(17):1810-1818.
5. Loefler IJ. Medical migration. *Lancet.* Sep 30 2000;356(9236):1196.
6. Buchan J, Jobanputra R, Gough P, Hutt R. Internationally recruited nurses in London: a survey of career paths and plans. *Hum Resour Health.* 2006;4:14.
7. World Health Organization. *Working for health : an introduction to the World Health Organization*. Geneva: World Health Organization; 2006.
8. Chen L, Evans T, Anand S, et al. Human resources for health: overcoming the crisis. *Lancet.* Nov 27-Dec 3 2004;364(9449):1984-1990.
9. Martineau T, Decker K, Bundred P. "Brain drain" of health professionals: from rhetoric to responsible action. *Health Policy.* Oct 2004;70(1):1-10.
10. Mullan F, Politzer RM, Davis CH. Medical migration and the physician workforce. International medical graduates and American medicine. *Jama.* May 17 1995;273(19):1521-1527.
11. AMA. IMGs in the United States. *American Medical Association*; 2007.
12. Polsky D, Kletke PR, Wozniak GD, Escarce JJ. Initial practice locations of international medical graduates. *Health Serv Res.* Aug 2002;37(4):907-928.
13. Rao V, Cabbabe E, Adams K, et al. *International Medical Graduates in the U.S. Workforce.* Chicago, IL: American Medical Association; October 2007.
14. Smart D. Physician Characteristics and Distribution in the US - 2006. *American Medical Association.* 2006 2006;Chicago, Ill.
15. NRMP. Advanced Data Tables for 2007 Main Residency Match. *National Residency Match Program*; 2007:Table 5.
16. Pugno PA, Schmittling GT, Fetter GT, Jr., Kahn NB, Jr. Results of the 2005 national resident matching program: family medicine. *Fam Med.* Sep 2005;37(8):555-564.
17. Hing E, Lin S. Role of international medical graduates providing office-based medical care: United States, 2005-2006. *NCHS Data Brief.* Feb 2009(13):1-8.
18. Morris AL, Phillips RL, Fryer GE, Jr., Green LA, Mullan F. International medical graduates in family medicine in the United States of America: an exploration of professional characteristics and attitudes. *Hum Resour Health.* 2006;4:17.
19. Cohen JJ. The role and contributions of IMGs: a U.S. perspective. *Acad Med.* Dec 2006;81(12 Suppl):S17-21.

20. Mick SS, Lee SY, Wodchis WP. Variations in geographical distribution of foreign and domestically trained physicians in the United States: 'safety nets' or 'surplus exacerbation'? *Soc Sci Med.* Jan 2000;50(2):185-202.

21. Ahmad OB. Managing medical migration from poor countries. *Bmj.* Jul 2 2005;331(7507):43-45.

22. Bundred PE, Levitt C. Medical migration: who are the real losers? *Lancet.* Jul 15 2000;356(9225):245-246.

23. Hagopian A, Thompson MJ, Fordyce M, Johnson KE, Hart LG. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Hum Resour Health.* Dec 14 2004;2(1):17.

24. Patel V. Recruiting doctors from poor countries: the great brain robbery? *Bmj.* Oct 18 2003;327(7420):926-928.

25. Narasimhan V, Brown H, Pablos-Mendez A, et al. Responding to the global human resources crisis. *Lancet.* May 1 2004;363(9419):1469-1472.

26. Pang T, Lansang MA, Haines A. Brain drain and health professionals. *Bmj.* Mar 2 2002;324(7336):499-500.

27. de Mesquita JB, Gorden M. *The International Migration of Health Workers: A Human Rights Analysis.* London, UK 2005.

28. Physicians for Human Rights. *An Action Plan to Prevent Brain Drain: Building Equitable Health Systems in Africa.* Boston, MA 2004.

29. World Health Organization. International recruitment of health personnel: draft global code of practice. Paper presented at: 126th Session, 2009; Geneva.

30. World Health Organization. WHO Global Code of Practice on International Recruitment of Health Personnel. Paper presented at: Sixty-Third World Health Assembly, 2010; Geneva.

31. Stilwell B, Diallo K, Zurn P, Vujicic M, Adams O, Dal Poz M. Migration of health-care workers from developing countries: strategic approaches to its management. *Bull World Health Organ.* Aug 2004;82(8):595-600.

32. *International Conference on Population and Development Cairo, Egypt, 5-13 September 1994* [microform:]. [Cairo]: United Nations; 1994.

33. Second World Rural Health Congress Conference Committee. Second World Rural Health Congress 1997; Durban, South Africa.

34. Srivastava R. A bridge to nowhere--the troubled trek of foreign medical graduates. *N Engl J Med.* Jan 17 2008;358(3):216-219.

35. Amore LGC. My part in the "brain drain". *BMJ.* September 30, 2000 2000;321(7264):841.

36. Association of American Medical Colleges. *Physician Shortages to Worsen Without Increases in Residency Training.* Chicago, IL: AAMC; 2010.

37. Biviano M, Makarehchi F. National Center for Health Workforce Analysis: Globalization and the Physician Workforce in the United States. *Sixth International Medical Workforce Conference*. Ottowa, Canada: US Department of Health and Human Services: Health Resources and Services Administration; 2002.

38. Baer LD, Konrad TR, Slifkin RT. *If Fewer International Medical Graduates are Allowed in the US, Who Might Replace Them in Rural, Underserved Areas?* Chapel Hill, NC: NC Rural

Health Research and Policy Analysis Program Cecil G. Sheps Center for Health Services Research UNC-Chapel Hill; May 2001 2001.

39. Chen P, Nunez-Smith M, Bernheim S, Berg D, Gozu A, Curry LA. Professional Experiences of International Medical Graduates in Primary Care. *J Gen Intern Med.* 2010;25(9):947-953.

40. Klein D, Hofmeister M, Lockyear J, Crutcher R, Fidler H. Push, pull, and plant: the personal side of physician immigration to alberta, Canada. *Fam Med.* Mar 2009;41(3):197-201.

41. Siringi S. Kenya government promises to increase doctors' salaries to curb brain drain. *Lancet.* Jul 28 2001;358(9278):307.

42. Kavalier F. Uganda: death is always just around the corner. *Lancet.* Jul 11 1998;352(9122):141-142.

43. Malterud K. The art and science of clinical knowledge: evidence beyond measures and numbers. *Lancet.* Aug 4 2001;358(9279):397-400.

44. Patton MQ. *Qualitative research & evaluation methods*. 3rd ed. Thousand Oaks, Calif.: Sage Publications; 2002.

45. Britten N. Qualitative interviews in medical research. *BMJ.* Jul 22 1995;311(6999):251-253.

46. WHO. Physician density per 1,000 population: World Health Organization; 2007.

47. Miles MB, Huberman AM. *Qualitative data analysis : an expanded sourcebook*. 2nd ed. Thousand Oaks: Sage Publications; 1994.

48. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res.* Aug 2007;42(4):1758-1772.

49. Glaser BG, Strauss AL. *The discovery of grounded theory; strategies for qualitative research*. Chicago,: Aldine Pub. Co.; 1967.

50. Department of Health and Ageing. Health Workforce: Rural Medical Bonded Scholarships. http://www.health.gov.au/mrbscholarships.

51. Habte D, Dussault G, Dovlo D. Challenges confronting the health workforce in sub-Saharan Africa. *World Hosp Health Serv.* 2004;40(2):23-26, 40-21.

52. Byrne E. Should postgraduate training places be reserved for UK graduates? Yes. *Bmj.* Sep 22 2007;335(7620):590.

53. Cole-Kelly K. The privilege of working with international medical graduates or hearffelt thanks to international medical graduates. *Fam Med.* Mar 2003;35(3):215-216.

54. Buchan J, Dovlo D. *International Recruitment of Workers to the UK: A Report for DFID.* London, UK February 2004 2004.

55. Goldacre M. Planning the United Kingdom's medical workforce. On present assumptions UK medical school intake needs to increase. *Bmj.* Jun 20 1998;316(7148):1846-1847.

56. Sullivan P. Medical school enrolment growing too slowly? *Cmaj.* May 1 2001;164(9):1334.

57. Couper I, Worley PS. The ethics of international recruitment. *Rural Remote Health.* Jan-Dec 2002;2(1):196.

58. Mullan F. Doctors for the world: Indian physician emigration. *Health Aff (Millwood).* Mar-Apr 2006;25(2):380-393.

59. Mullan F, Frehywot S. Non-physician clinicians in 47 sub-Saharan African countries. *Lancet.* Dec 22 2007;370(9605):2158-2163.

60. Mays N, Pope C. Rigour and qualitative research. *Bmj.* Jul 8 1995;311(6997):109-112.

61. Pope C, Ziebland S, Mays N. Qualitative research in health care. Analysing qualitative data. *Bmj.* Jan 8 2000;320(7227):114-116.

62. Curry LA, Nembhard IM, Bradley EH. Qualitative and mixed methods provide unique contributions to outcomes research. *Circulation.* Mar 17 2009;119(10):1442-1452.

63. World Federation for Medical Education. Basic Medical Education WFME Global Standards for Quality Improvement. http://www.iaomc.org/wfme.htm. Accessed January 3rd, 2011, 2011.

64. Salsberg E, Nolan J. The posttraining plans of international medical graduates and US medical graduates in New York State. *Jama.* Apr 5 2000;283(13):1749-1750.

65. Buchan J. Challenges for WHO code on international recruitment. *Bmj.* 2010;340:c1486.

66. Kandela P. Oversupply of doctors fuels Egypt's health-care crisis. *Lancet.* Jul 11 1998;352(9122):123.

67. Diallo K. Data on the migration of health-care workers: sources, uses, and challenges. *Bull World Health Organ.* Aug 2004;82(8):601-607.

Legend: Titles for Table and Text Box

Table 1: Characteristics of Study Participants

Text Box 1: Interview Guide and Illustrative Probes

Table 1. Characteristics of Study Participants

Characteristic		Result*
Median Age (range), years		46 (30-65)
Female		11 (44)
Specialty		
	Family Practice	7 (28)
	Pediatrics	8 (32)
	Internal Medicine	10 (40)
Region of Origin		
	Sub-Saharan Africa	6 (24)
	South Asia	8 (32)
	East Asia	5 (20)
	Latin America	2 (8)
	Middle East	4 (16)
Years since completed residency		
	0-5 years	5 (20)
	6-10 years	6 (24)
	11-15 years	7 (28)
	16-20 years	3 (12)
	20-25 years	1 (4)
	>25 years	3 (12)

* Results are mean (range) for age and number (%) for all other variables

Text Box 1

1. Tell me about your experiences working in the United States as an IMG physician. Potential Probes:

What is good (and/or challenging)about being an IMG physician?
How has being an IMG physician influenced your professional life?
Have you ever felt that your career choices were expanded (or limited) because you are an IMG physician?

2. Could you talk a little about sources of support during training and throughout your career? Potential Probes:

Were there many other IMG physicians where you trained or where you work now and how does that affect your experience?
Can you talk about your experience with formal and informal support networks?
Were there any particular pieces of curriculum in your training that were helpful/unhelpful?
Could you talk about sources of support that you think should exist for IMG physicians?

3. How are your professional relationships (with patients, other physicians, support staff) affected by your status as an IMG physician? Potential Probes:

Have your workplace relationships differed in the various places where you have worked; if so, how?

4. Please share your thoughts on the phenomenon of physician migration either on a personal or a population level. Potential Probes:

Current relationship with home country, feelings about migration
Individual versus collective identity as an IMG physician

Qualitative research review guidelines – RATS

	ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT	✓
R	**Relevance of study question**		
	Is the research question interesting?	Research question explicitly stated	✖
	Is the research question relevant to clinical practice, public health, or policy?	Research question justified and linked to the existing knowledge base (empirical research, theory, policy)	✖
A	**Appropriateness of qualitative method**		
	Is qualitative methodology the best approach for the study aims? *Interviews:* experience, perceptions, behaviour, practice, process *Focus groups:* group dynamics, convenience, non-sensitive topics *Ethnography:* culture, organizational behaviour, interaction *Textual analysis:* documents, art, representations, conversations	Study design described and justified e.g., why was a particular method (i.e., interviews) chosen?	✖
T	**Transparency of procedures**		
	Sampling		
	Are the participants selected the most appropriate to provide access to type of knowledge sought by the study? Is the sampling strategy appropriate?	Criteria for selecting the study sample justified and explained *theoretical:* based on pre conceived or emergent theory *purposive:* diversity of opinion *volunteer:* feasibility, hard-to-reach groups	✖
	Recruitment		
	Was recruitment conducted using appropriate methods? Is the sampling strategy appropriate?	Details of how recruitment was conducted and by whom	✖
	Could there be selection bias?	Details of who chose not to participate and why	✖
	Data collection		
	Was collection of data systematic and comprehensive?	Method (s) outlined and examples given (e.g., interview questions)	✖
	Are characteristics of the study group and setting clear?	Study group and setting clearly described	✖
	Why and when was data collection stopped, and is this reasonable?	End of data collection justified and described	✖
	Role of researchers		
	Is the researcher (s) appropriate? How might they bias (good and bad) the conduct of the study and results?	Do the researchers occupy dual roles (clinician and researcher)? Are the ethics of this discussed?Do the researcher(s) critically examine their own influence on the formulation of the research question, data collection, and interpretation?	✖ ✖

	Ethics		
	Was informed consent sought and granted?	Informed consent process explicitly and clearly detailed	✖
	Were participants' anonymity and confidentiality ensured?	Anonymity and confidentiality discussed	✖
	Was approval from an appropriate ethics committee received?	Ethics approval cited	✖
S	**Soundness of interpretive approach**		
	Analysis		
	Is the type of analysis appropriate for the type of study? *thematic:* exploratory, descriptive, hypothesis generating *framework:* e.g., policy *constant comparison/grounded theory:* theory generating, analytical	Analytic approach described in depth and justified	✖
	Are the interpretations clearly presented and adequately supported by the evidence?	*Indicators of quality:* Description of how themes were derived from the data (inductive or deductive)	✖
	Are quotes used and are these appropriate and effective?	Evidence of alternative explanations being sought Analysis and presentation of negative or deviant cases Description of the basis on which quotes were chosen Semi-quantification when appropriate Illumination of context and/or meaning, richly detailed	✖
	Was trustworthiness/reliability of the data and interpretations checked?	Method of reliability check described and justified e.g., was an audit trail, triangulation, or member checking employed? Did an independent analyst review data and contest themes? How were disagreements resolved?	✖
	Discussion and presentation		
	Are findings sufficiently grounded in a theoretical or conceptual framework? Is adequate account taken of previous knowledge and how the findings add?	Findings presented with reference to existing theoretical and empirical literature, and how they contribute	✖
	Are the limitations thoughtfully considered?	Strengths and limitations explicitly described and discussed	✖
	Is the manuscript well written and accessible?	Evidence of following guidelines (format, word count) Detail of methods or additional quotes contained in appendix Written for a health sciences audience	✖
			?
	Are red flags present? these are common features of ill conceived or poorly executed qualitative studies, are a cause for concern, and must be viewed critically. They might be fatal flaws, or they may result from lack of detail or clarity.	*Grounded theory:* not a simple content analysis but a complex, sociological, theory generating approachJargon: descriptions that are trite, pat, or jargon filled should be viewed sceptically *Over interpretation:* interpretation must be grounded in "accounts" and semi-quantified if possible or appropriate *Seems anecdotal, self evident:* may be a	✖

	superficial analysis, not rooted in conceptual framework or linked to previous knowledge, and lacking depth *Consent process thinly discussed:* may not have met ethics requirements *Doctor-researcher:* consider the ethical implications for patients and the bias in data collection and interpretation	

International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000138.R1
Article Type:	Research
Date Submitted by the Author:	13-Jun-2011
Complete List of Authors:	Chen, Peggy; Yale University School of Public Health, Health Policy and Administration Nunez-Smith, Marcella; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, General Internal Medicine Berg, David; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, Psychiatry Gozu, Aysegul; Franklin Square Hospital, Internal Medicine Curry, Leslie; Yale University School of Public Health, Health Policy and Administration; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program
Primary Subject Heading:	Health service research
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE

International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Chen PG,[1] Nunez-Smith M,[2,3] Berg D,[1,4] Gozu A,[5] Rulisa S,[6, 7] Curry LA,[1,2]

Chen PG: Division of Health Policy and Administration, Yale University School of Public Health, 47 College Street, New Haven CT 06520, United States, Post-doctoral fellow.

Nunez-Smith M: Section of General Internal Medicine, Yale University School of Medicine, PO BOX 208025, New Haven, CT 06520-8025, Assistant professor.

Berg D: Department of Psychiatry, Yale University School of Medicine, 300 George Street, New Haven, CT 06511-6624, Clinical professor.

Gozu A: Department of Internal Medicine, Franklin Square Hospital, 9105 Franklin Square Drive, Suite 312, Baltimore MD 21237, Director Internal Medicine Residency Program.

Rulisa S: Department of Clinical Research, University Teaching Hospital of Kigali, 1024 Rue de la Paix, PO Box 655, Kigali City, Kigali, Rwanda, Head of Clinical Research.

Curry L: Division of Health Policy and Administration, Yale University School of Public Health, PO BOX 208034, New Haven, CT 06520-8034, United States, Research scientist.

Corresponding author: Peggy Guey-Chi Chen, Department of Health Policy and Administration, Yale University School of Epidemiology and Public Health, 47 College Street; Room 104; New Haven, CT 06520; Tel 203.737.3556. peggy.chen@yale.edu.

Competing Interests

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that PC, MNS, DB, AG, SR and LC have no financial relationships that might have an interest in the submitted work; and PC, MNS, DB, AG, SR and LC have no non-financial interests that may be relevant to the submitted work.

Data sharing

Study protocol, interview guide and code structure available from corresponding author at peggy.chen@yale.edu. No additional data available. The authors were required by the Yale Human Investigations Committee to destroy all data following final analysis in order to protect the identities of the participants.

Funding

Funding for this study was provided by the Robert Wood Johnson Clinical Scholars Program, the Robert Wood Johnson Foundation and the Agency for Healthcare Research and Quality (T32 HS 017589-02T32). The research team was independent from the funders, who had no role in the collection, analysis, and interpretation of data; in the writing of the report; or the decision to submit the article for publication.

Article focus

- International medical graduates (IMGs) play a significant role in the primary care workforce in many nations, including the United States.
- Prior literature on physician migration has largely considered physician migration an isolated event, focused on financial pressures in home country or expanded training opportunities in the US.
- Multi-faceted aspects of experience, including the effects of institutional, workplace and workforce policies that contribute to this complex phenomenon have not been included in current discussions surrounding the global health workforce.

Key messages

- The causes of physician migration are not isolated from one another, but rather, migration is influenced by a confluence of experience and circumstance and affects IMGs throughout their careers.
- The perspectives of IMGs are central to a comprehensive understanding of the causes and consequences of physician migration.
- This understanding is essential to the development of effective and appropriate solutions for global health workforce challenges.

Strengths and limitations of this study

Strengths

- Participants were diverse with regard to age, specialty, geographic regions of origin and years of clinical experience in the US.
- The study utilized a number of recommended strategies to insure rigor.

- High participation rate suggests that this is an issue IMGs are motivated to discuss despite the potentially personal and sensitive nature of the topic.

Limitations

- As a qualitative study, this work is meant to be foundational and exploratory. Hyoptheses generated will need to be tested with larger, quantitative studies.
- Study was geographically circumscribed to metropolitan regions. Other regions, particularly rural areas, may present a substantially different environment and experience.

Abstract

Objectives

Physician migration from low-income to high-income nations is a global concern, exacting a substantial toll on both the financial and human resources of home countries. Despite the centrality of understanding the perspectives of IMGs who have experienced migration to understanding the causes and consequences of this phenomenon, empirical literature is limited. The authors sought to characterize the experiences of IMGs from limited resource nations currently practicing primary care in the United States, with a focus on their perspectives on physician migration.

Design

The authors conducted a qualitative study utilizing in-depth, in-person interviews and a standardized interview guide. The sample comprised a diverse, purposeful sample of IMGs (n=25) from limited resource nations (defined as having ≤ 2 physicians per 1,000 population).

Results

Analyses revealed four recurrent and unifying themes reflecting the perspectives of IMGs in the United States on physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Conclusion

The perspectives of IMGs who have migrated to the US are an important addition to the ongoing discussion surrounding the global health workforce. Our findings highlight the effects of workforce policies which are often developed and discussed in abstraction, but have real, measurable impacts on the lives of individuals. Future efforts to address physician migration will need to acknowledge the immediate needs of the health workforce as well as the long-term needs of individuals within health systems.

Background

Physician migration from low-income to high-income nations is a global concern.[1, 2] Large scale migration of physicians exacts a substantial toll on the resources of limited resource nations.[3-8] In the United States, United Kingdom, Canada and Australia physicians from limited resource nations account for between 20% and 30% of the physician workforce in these destination countries.[1, 9, 10] In the United States, international medical graduates (IMGs), defined as physicians who attended medical school outside the US or Canada, play an important role in primary care,[11-16] particularly for vulnerable populations[17, 18] and care in physician shortage areas.[17, 19, 20]

Extant literature has largely approached the motivation for migration as a single decision point.[1, 21-24] Among health workers in the African diaspora, Clemens et al[25] reports an inverse relationship between economic and political stability and physician migration. Evidence from India indicates that perceived greater professional opportunities drive many potential Indian migrant physicians.[26] Similarly, a survey in Pakistan indicated that low remuneration, poor training and poor work environment influenced potential Pakistani migrant physicians.[27] Finally, factors such as changing medical school curricula,[5] and recent work indicating that within home countries, graduates from higher quality institutions are more likely to migrate have also been examined quantitatively.[28, 29]

Nevertheless, prior studies have not utilized qualitative methods to capture the complex aspects of experience that contribute to migration. Recent calls to approach physician migration as a symptom of problems in home country emphasize the need for greater understanding of the complex decisions leading to migration.[30] The policy debate surrounding physician migration in the US is multi-faceted, with recommendations to limit physician migration[21, 31-42] weighed against the decisions of individual physicians[43, 44] and ongoing gaps in the US physician workforce.[45-47] The perspectives of IMGs who have migrated and subsequently chosen to remain in the US are vital to developing a comprehensive understanding of the causes and consequences of physician migration. They may also improve understanding of the effects of workplace and workforce policies on the individuals they target, and contribute to creative approaches for addressing workforce challenges faci both domestic and global health systems. In this analysis, we sought to characterize the experiences of IMGs from limited resource nations currently practicing in the US with a focus on their perspectives on the phenomenon of physician migration.

Methods

We chose a qualitative design to characterize participant perspectives and generate hypotheses for future testing in larger, quantitative studies. This approach is optimal for capturing the essential aspects of a phenomenon from the perspective of study participants, when addressing potentially sensitive subjects, and when there may be fear of reprisals or repercussions.[48, 49]

Study Design and Sampling

We conducted one-on-one interviews[50] with non-US born IMG physicians who completed residency training in the US and were in outpatient primary care practice (family medicine, internal medicine and paediatrics). Physicians were included if their home country met our definition of a limited-resource nation: countries identified by the World Health Organization as having < 2 physicians per 1,000 individuals in the population (the United States has 2.56 physicians per 1,000 individuals).[51] To construct the sample, we utilized the strategy of random purposeful sampling[49, 52] in which groups of interest (gender, specialty, region of origin) were identified and key informants within each group were randomly selected to achieve a diverse sample.

We identified potential participants through: the American Medical Association's IMG Section roster; state licensure board databases for Connecticut, New York and New Jersey; and department chairs at regional institutions. Recruitment and data collection were conducted until thematic saturation,[49] the point at which no new concepts emerge from subsequent interviews, was achieved. The Human Investigation Committee at Yale University School of Medicine approved the research protocol. All participants provided verbal informed consent. In total, 27 physicians were contacted and 25 agreed to participate (93% participation rate). Two physicians declined to participate due to scheduling conflicts.

Data Collection

One researcher (PC), a paediatrician, a second-generation immigrant and member of an ethnic minority group, conducted all in-person interviews.

The interview guide (Text Box) consisted of open-ended, 'grand tour' questions[49, 53] including: "Please share your thoughts on physician migration either on a personal level or from a population level." Probes were used to encourage clarification and elaboration on specific sources of support. Probes are not standardized, and their use is highly contextual for each interview.[49] Interviews were audio-taped, professionally transcribed and reviewed to ensure accuracy. Interviews lasted an average of 45 minutes and participants completed a brief demographic survey at the conclusion of the interview.

Analysis

Analysis was performed by a 5-person multidisciplinary team including a paediatrician, family physician, internists (including an IMG), an organizational psychologist, and health services researchers each with training and expertise in qualitative methods. We developed a code structure in stages and in accordance with principles of grounded theory,[54] using systematic, inductive procedures to generate insights grounded in the views expressed by study participants.

First, the full research team independently coded three transcripts, meeting to negotiate consensus over differences in independent coding. We developed codes, or tags to classify data inductively,[54] drafting an integrated code structure.[55] We used the constant comparison method[55] to insure that emergent themes were consistently classified, expand on existing codes, identify novel concepts and refine codes. Second, a core team of three analysts (PC, SB and AG) independently coded all remaining transcripts and reconciled differences through consensus; the full team participated in analysis meetings and finalized a comprehensive code structure capturing all data concepts related to physician migration. PC then systematically applied the final code structure to all transcripts.

At several stages throughout the iterative process of data collection and analysis, we conducted participant confirmation[48, 49, 55] in which summary results were distributed to participants to confirm the developing themes accurately reflected participants' experience. We used qualitative analysis software (ATLAS.ti 5.0, Scientific Software Development, Berlin, Germany) to facilitate data organization and retrieval.

Results:

Demographics

Our final sample consisted of 25 IMG physicians (Table 1). We achieved broad representation with regard to age, specialty, geographic region of origin and years of clinical experience in the US. The mean number of physicians per 1,000 of the population in participants' home country

was 0.74 (range 0.03-1.88, US=2.56). All respondents were at various stages in the process of seeking permanent residency status or citizenship in the US.

Themes

Our focused analysis revealed four recurrent and unifying themes which reflect the perspectives of IMGs in the United States on physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Decisions to migrate were pragmatic decisions made in the context of individual circumstance

Participants described decisions to leave home country resulting from the particularities of their given situation, such as economic conditions, political environments and opportunities for professional advancement. This family practitioner from East Asia emphasized the difficult economic realities of life at home:

> "*When you are raised in a third world country, your outlook is on survival. It is not on the nebulous concept of, will I deprive my countrymen if I leave. That is a big difference in thinking... Over here, on a resident's salary ... you won't have luxuries, but you won't go hungry... It is a matter of survival... If I could have the*

same standard of living I have here as I do in [home country] would I prefer to practice in [home country]? Yes."

For this internist from the Middle East, the decision to leave home country had been the result of an untenable political situation, highlighting the trade-offs inherent in migration:

"*I came [here] because … there was no hope that they were going to turn the country back into a democratic, civilized country. And so America has nothing to do with it. It's not like a magnet that they welcome us and we stayed. It's the condition that we run away from… you're choosing between … worse and worst. Whether you want to go to through the culture shock and language shock and all the barriers as … goddamn foreigner, or you want to stay in your country, which you belong to, you were raised in, but have no quality of life… So that is why people run away and come to America*."

Similarly, this paediatrician from the Middle East described the decision to migrate as defending a quality of life that had been eroded as a result of civil conflict, emphasizing a difference between temporary migration for educational purposes, and the more permanent status of immigration.

"*We weren't a starving country. It was one of the oil producers, so we had the good things. Usually as physicians, you live very good, so we didn't have much of physician immigration. Most of the physicians who will go to study… they came back… I personally never thought of leaving the country unless for studying, not for immigration. I [would] never thought of immigration if not for the political situation.* "

This individual also expressed that governments of both low and high income nations have a role to play in creating a working environment where physicians are able to remain in their home countries;

> *"We can lead the doctors back towards their countries … [but] then we have to provide for them there. They want to stay, let's help them stay. Most important is to help them develop some middles, like nurses and technicians… having programs to talk about … improving health systems … for doctors who want to stay … even when you bring people [to the US] for training and you make it difficult for them to stay, I think it is okay in a way… but it is not enough… if people want to stay here, they will find a way to stay. And don't fool ourselves. I think you have to look in other ways to keep physicians in their countries by having them be part of a global program to improve that."*

Finally, this paediatrician from sub-Saharan Africa described his own migration in order to pursue professional opportunities not easily available at home.

> *"Personally, the reason why I came is to seek knowledge and I could quickly get it here... unlike in [home country] … … you might have to pay somebody … like hanky panky. You can do very good here… play by the rules, pass the exams and graduate…"*

The act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways

Even participants who initially did not plan to remain in the US described how migration had changed them both personally and professionally. Moreover, in many instances, their home countries had also changed in their absence. Participants were thus hesitant to return to home

country for logistic, professional and cultural reasons. This internist from sub-Saharan Africa, who initially migrated because of a civil war at home, described the first trip home after the conflict had ended and his realization that a permanent return was unlikely.

> *"People would see me … and I would hear oh, he's so American…. You just -- you don't fit in anymore…you can't go back, as they say. It's really true... I [had] wanted the government to fall so I could go back… that happened and yet … it was a big disappointment for me…."*

For this internist from South Asia, migration and working as a physician in the US revealed conditions at home she had not noticed prior to her migration.

> *"Professionally, now since I have been practicing… here… when I go back … and see… sometimes maybe the area is not so clean... maybe it is because there is so much demand and there are so many patients and the expenses and everything. They do not have structured medical system... you see all those differences more clearly once you have been here…When I was there, that was all normal and part of it and there was nothing really glaring about it, but now I go back from here and I see it…"*

This family practitioner from Latin America described professional and practice differences that had factored into the decision to remain in the US rather than return home.

> *"[At home] it is a cash business... you are really just caring or serving the people who can pay you… I've even heard docs [at home] say… don't cure it on the first visit because then … you only get paid once, whereas if you give something that's not going to take*

care of it… they will come in for a second visit … I don't think I would be able to adapt to that again."

The ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US

Although participants had left their home country for a variety of reasons, all had either completed or were in the process of seeking permanent residency status or citizenship in the US. While all acknowledged their commitment and desire to remain in the US, participants also described ongoing guilt resulting from this decision. For this paediatrician from sub-Saharan Africa, the struggles stemmed from his perception of being trapped by multiple responsibilities and expectations.

"My intention was when I first came over was to… do my residency and go home … but then … after 3 years with all of these immigration problems, no money, you can't go back, you get trapped in the system. There is no going back ... even after acquiring this knowledge, I can't help my people… there are plenty physicians [in the US] who can do the same thing I do … back home there are not many people who can do the same thing I do…"

Another paediatrician from sub-Saharan Africa believed that his skills were not being effectively used in the US, but acknowledged that this was a trade-off allowing his family to live and work in the US.

"I'm very much conscious of the fact that I'm working in an area where … there are many, many doctors to take care of the people. In [home country], I could work in an

area where … I would be saving some lives every day. That has been a bit of an adjustment, although I always have to just consider my family as a whole… I do look back and … I was …doing more for somebody's life 20 years ago than I do on a daily basis here."

This internist from South Asia described a desire, echoed by many participants, to give back to his home country as a form of repayment for education and other investments the country had made in him.

"I thought... I should go back... because I owe them my medical school education. So I ... spoke a couple of times... went to visit a couple of times. Almost every year or every other year I go if I get a chance... Even if it's for a week I go there and I try to do as much as I can... I owe this to my country."

Effects of policies in both home country and in the US occurred at multiple levels

Although participants ultimately made their migration-related decisions based on individual needs and goals, there was a high level of awareness of the downstream effects of local, national and international policies. This paediatrician from sub-Saharan Africa noted that, while many physicians at home sought to come to the US for increased educational opportunities, licensing restrictions in home countries meant that many did not return home because of the additional commitment of time and energy this would require.

"Strangely, my training …here is not actually good enough to be a paediatrician in [home country]. I'm like a primary care doctor here, so I would be able to work as a general practitioner with an interest in paediatrics, but to be a paediatrician I would have to go

back to the hospital and do some more training… until I passed … a national exam … each year, there might only be about 5 or 6 paediatricians qualifying in the entire country…"

This internist from the Middle East recalled an attempt to modernize the medical school in home country:

"So he took the responsibility to come to U.S. and copy the curriculum of the medical school ... and build that medical school and the affiliated hospitals... Our books were packed from U.S. I mean, when we went to buy our Harrison, I could see they were just ripping the boxes just from U.S., taking out of the cellophane, and sell[ing] it right there. Our stethoscope, everything. Everything came from U.S."

This individual continued by commenting that this modernized hospital essentially served only the elites of the country and that training was better suited for ultimate practice in Western nations than in many parts of home country.

Participants also noted that, due to the expense, time commitment and licensing requirements, only certain physicians are able to take part in physician migration. This has profound effects on the remaining workforce. This internist from the Middle East remarked that workforce-unfriendly policies in home countries not deprived home countries of physicians, but left behind a potentially less competent workforce.

"*It comes from bad policies … People are leaving and it becomes a vicious cycle. The more people who are capable leave, the more inept people come into the power which*

makes the life more miserable for more capable people so the more capable people will leave."

Finally, this paediatrician from sub-Saharan Africa, who maintains extensive ties with home country, commented that while many physicians at home migrated to higher-income nations, his home country had, in turn, recruited physicians from lower-income nations.

"I go back to [home country] every year… We are very much aware of the medical system in [home country] … They lost large numbers of physicians who… went everywhere in the world and [home country] has become a magnet for … physicians from the rest of Africa... So in turn, the vacuum has been filled by the immigration."

Discussion

We conducted an in-depth, systematic exploration of experiences of primary care physicians who migrated from limited resource nations to the US. Our findings indicate decisions surrounding migration were generally based on individual needs and goals, resulting from a confluence of circumstance in home country. Subsequent decisions to remain in the US were frequently unplanned and unintentional, stemming from changes that result from migration and acculturation, as well as circumstances making return to home country unpalatable or impossible. Finally, despite the emphasis on individual motivations in the migration decision, in reflection participants viewed their decisions in more abstract terms: revealing ongoing struggles with their decisions, opinions on necessary elements for improving the situation in their home countries, and consideration of the effect of their migration on the global health workforce.

Our findings reflect prior work indicating the role of economic and political stability,[25] professional opportunities,[26] poor work environment[27] and sub-optimal workforce dynamics.[28, 29] Additionally, this study expands the framework to include the intended and unintended effects of various workforce policies and the broader contexts within which migration decisions are made. While economic and political stability may ultimately result in the retention of many potential migrants, such stability is the result of slow change over time and must include steps toward building human capital in limited resource nations. A uniform standard for principles of education and training may be part of this solution, acknowledging the global nature of the health workforce and enabling personal advancement while augmenting human capital at home. Partnerships between limited resource nations and destination country institutions, through research networks or clinical collaborations offer further opportunities for capacity building in limited resource nations. Finally, education in general and medical education specifically is typically provided at low or no cost in limited resource nations, representing a significant loss of investment when physicians migrate. Proposals to recoup this investment, such as educational bonding schemes[9, 56] and better regulation and mandated compensation from destination countries to to limited resource nations[3] need systematic examination.

Our findings should be interpreted in light of the potential limitations of the study. First, as a qualitative study, this work was meant to be exploratory in nature and conclusions are not meant to be generalized. We sought to characterize a range of experiences among a diverse group of IMGs in order to generate hypotheses that may be tested in future, quantitative studies. Second, we focused on IMG physicians in outpatient primary care specialties because

of the concentration of IMGs in these fields. Experiences of IMG physicians in other specialties may differ, particularly in more competitive specialties with fewer IMGs. Additionally, our study was geographically circumscribed to New York, New Jersey and Connecticut, largely metropolitan regions of the country. IMGs who practice in other geographic regions, particularly rural areas, may have different perspectives. Future work should also examine the perceptions and decision-making processes of physicians who returned to limited resource countries following training in the US. Such data are not currently tracked and the experiences of this group are generally difficult to capture due to their global geographic distribution.

There are also a number of strengths to our study. First, participants were diverse with regard to age, specialty, geographic regions of origin and years of clinical experience in the US. Despite this diversity, the commonalities in participants' experiences and perceptions of physician migration were reflected in the recurring and unifying themes reported. Second, we utilized a number of recommended strategies to insure rigor: consistent use of an interview guide; audio-taping and independent transcription; standardized coding and analysis; use of researchers with diverse racial/ethnic and professional backgrounds; an audit trail to document analytic decisions; and participant confirmation in which participants reviewed a summary of the data and endorsed the content of the themes.[48, 49, 57-59] Third, our high participation rate suggests that this is an issue IMGs are motivated to discuss in a research context, despite the potentially personal and sensitive nature of the topic.

Global health workforce shortages must be addressed in the context of a comprehensive understanding of motivations. The accurate reflections and perspectives of IMGs are an important addition to ongoing discussions over potential solutions to the global health workforce crisis.[60, 61] Our findings highlight the reported effects of global and local workforce policies on individuals. Such policies are often developed and discussed in abstraction, but have real and measurable impacts on individual lives. Ongoing discussions must include the role and responsibilities of high-income nations as well as actions on the part of limited income nations themselves in order to arrive at effective strategies for the global health workforce as a whole and the individuals within it.

Conclusion

In 1994, the International Conference on Population and Development concluded: "the long-term manageability of international migration hinges on making the option to remain in one's country a viable one for all people."[41] Migrating physicians make difficult decisions to leave the countries in which they were born, reared and schooled as the result of a confluence of factors leading participants to believe they lacked a future in their home countries either professionally or personally. Attempts to address physician migration will need to address not only the immediate needs of the healthcare delivery workforce, but also the long-term needs of individuals and health systems. Although the road to an ultimate solution may be long, our findings indicate that even small steps toward the end goal may have beneficial effects on the workforce by providing individuals with hope for their futures in their own countries. Such

small efforts, taken together over time, can build individuals' faith that health systems can evolve to support the practice of high quality medicine with good outcomes for all.

Authors Contributions

PC, MNS and LC conceived of and designed the study. PC, MNS, DB, AG, SR and LC contributed to the analysis and interpretation of data. PC, MNS and LC drafted the article. PC, MNS, DB, AG, SR and LC revised the article critically for important intellectual content. PC, MNS, DB, AG, SR and LC provided final approval of the version to be published. All authors, external and internal, had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Acknowledgements

The authors thank Susannah Bernheim (SB) for contributions to data analysis and interpretation; the American Medical Association IMG section for assistance in recruiting; the Educational Foundation for Foreign Medical Graduates for helpful comments; and all physicians who participated in this study.

References

1. Mejía A, Pizurki H, Royston E, World Health Organization. *Physician and nurse migration: analysis and policy implications : report of a WHO study*. Geneva [Albany, N.Y.: World Health Organization ; obtainable from WHO Publications Centre USA]; 1979.
2. Zurn P, Dal Poz MR, Stilwell B, Adams O. Imbalance in the health workforce. *Hum Resour Health.* Sep 17 2004;2(1):13.
3. Mills EJ, Schabas WA, Volmink J, et al. Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime? *Lancet.* Feb 23 2008;371(9613):685-688.
4. Mullan F. The metrics of the physician brain drain. *N Engl J Med.* Oct 27 2005;353(17):1810-1818.
5. Loefler IJ. Medical migration. *Lancet.* Sep 30 2000;356(9236):1196.
6. Buchan J, Jobanputra R, Gough P, Hutt R. Internationally recruited nurses in London: a survey of career paths and plans. *Hum Resour Health.* 2006;4:14.
7. World Health Organization. *Working for health : an introduction to the World Health Organization*. Geneva: World Health Organization; 2006.
8. Chen L, Evans T, Anand S, et al. Human resources for health: overcoming the crisis. *Lancet.* Nov 27-Dec 3 2004;364(9449):1984-1990.
9. Martineau T, Decker K, Bundred P. "Brain drain" of health professionals: from rhetoric to responsible action. *Health Policy.* Oct 2004;70(1):1-10.
10. Mullan F, Politzer RM, Davis CH. Medical migration and the physician workforce. International medical graduates and American medicine. *Jama.* May 17 1995;273(19):1521-1527.
11. AMA. IMGs in the United States. *American Medical Association*; 2007.
12. Polsky D, Kletke PR, Wozniak GD, Escarce JJ. Initial practice locations of international medical graduates. *Health Serv Res.* Aug 2002;37(4):907-928.
13. Rao V, Cabbabe E, Adams K, et al. *International Medical Graduates in the U.S. Workforce.* Chicago, IL: American Medical Association; October 2007.
14. Smart D. Physician Characteristics and Distribution in the US - 2006. *American Medical Association.* 2006 2006;Chicago, Ill.
15. NRMP. Advanced Data Tables for 2007 Main Residency Match. *National Residency Match Program*; 2007:Table 5.
16. Pugno PA, Schmittling GT, Fetter GT, Jr., Kahn NB, Jr. Results of the 2005 national resident matching program: family medicine. *Fam Med.* Sep 2005;37(8):555-564.
17. Hing E, Lin S. Role of international medical graduates providing office-based medical care: United States, 2005-2006. *NCHS Data Brief.* Feb 2009(13):1-8.
18. Morris AL, Phillips RL, Fryer GE, Jr., Green LA, Mullan F. International medical graduates in family medicine in the United States of America: an exploration of professional characteristics and attitudes. *Hum Resour Health.* 2006;4:17.
19. Cohen JJ. The role and contributions of IMGs: a U.S. perspective. *Acad Med.* Dec 2006;81(12 Suppl):S17-21.

20. Mick SS, Lee SY, Wodchis WP. Variations in geographical distribution of foreign and domestically trained physicians in the United States: 'safety nets' or 'surplus exacerbation'? *Soc Sci Med.* Jan 2000;50(2):185-202.

21. Ahmad OB. Managing medical migration from poor countries. *Bmj.* Jul 2 2005;331(7507):43-45.

22. Klein D, Hofmeister M, Lockyear J, Crutcher R, Fidler H. Push, pull, and plant: the personal side of physician immigration to Alberta, Canada. *Fam Med.* Mar 2009;41(3):197-201.

23. Siringi S. Kenya government promises to increase doctors' salaries to curb brain drain. *Lancet.* Jul 28 2001;358(9278):307.

24. Kavalier F. Uganda: death is always just around the corner. *Lancet.* Jul 11 1998;352(9122):141-142.

25. Clemens, M.A. and G. Pettersson, New data on African health professionals abroad. Hum Resour Health, 2008. 6: p. 1.

26. Rao, N.R., U.K. Rao, and R.A. Cooper, Indian medical students' views on immigration for training and practice. Acad Med, 2006. 81(2): p. 185-8.

27. Syed, N.A., et al., Reasons for migration among medical students from Karachi. Med Educ, 2008. 42(1): p. 61-8.

28. Kaushik, M., et al., High-end physician migration from India. Bull World Health Organ, 2008. 86(1): p. 40-5.

29. Kaushik, M., et al., Quality of medical training and emigration of physicians from India. BMC Health Serv Res, 2008. 8: p. 279.

30. Clemens, M. (2010) Health Worker Migration: Disease or Symptom? Global Health, Global Affairs Council, Winter 2010.

31. Bundred PE, Levitt C. Medical migration: who are the real losers? *Lancet.* Jul 15 2000;356(9225):245-246.

32. Hagopian A, Thompson MJ, Fordyce M, Johnson KE, Hart LG. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Hum Resour Health.* Dec 14 2004;2(1):17.

33. Patel V. Recruiting doctors from poor countries: the great brain robbery? *Bmj.* Oct 18 2003;327(7420):926-928.

34. Narasimhan V, Brown H, Pablos-Mendez A, et al. Responding to the global human resources crisis. *Lancet.* May 1 2004;363(9419):1469-1472.

35. Pang T, Lansang MA, Haines A. Brain drain and health professionals. *Bmj.* Mar 2 2002;324(7336):499-500.

36. de Mesquita JB, Gorden M. *The International Migration of Health Workers: A Human Rights Analysis.* London, UK 2005.

37. Physicians for Human Rights. *An Action Plan to Prevent Brain Drain: Building Equitable Health Systems in Africa.* Boston, MA 2004.

38. World Health Organization. International recruitment of health personnel: draft global code of practice. Paper presented at: 126th Session, 2009; Geneva.

39. World Health Organization. WHO Global Code of Practice on International Recruitment of Health Personnel. Paper presented at: Sixty-Third World Health Assembly, 2010; Geneva.

40. Stilwell B, Diallo K, Zurn P, Vujicic M, Adams O, Dal Poz M. Migration of health-care workers from developing countries: strategic approaches to its management. *Bull World Health Organ.* Aug 2004;82(8):595-600.

41. *International Conference on Population and Development Cairo, Egypt, 5-13 September 1994* [microform:]. [Cairo]: United Nations; 1994.

42. Second World Rural Health Congress Conference Committee. Second World Rural Health Congress 1997; Durban, South Africa.

43. Srivastava R. A bridge to nowhere--the troubled trek of foreign medical graduates. *N Engl J Med.* Jan 17 2008;358(3):216-219.

44. Amore LGC. My part in the "brain drain". *BMJ.* September 30, 2000 2000;321(7264):841.

45. Association of American Medical Colleges. *Physician Shortages to Worsen Without Increases in Residency Training.* Chicago, IL: AAMC; 2010.

46. Biviano M, Makarehchi F. National Center for Health Workforce Analysis: Globalization and the Physician Workforce in the United States. *Sixth International Medical Workforce Conference*. Ottowa, Canada: US Department of Health and Human Services: Health Resources and Services Administration; 2002.

47. Baer LD, Konrad TR, Slifkin RT. *If Fewer International Medical Graduates are Allowed in the US, Who Might Replace Them in Rural, Underserved Areas?* Chapel Hill, NC: NC Rural Health Research and Policy Analysis Program Cecil G. Sheps Center for Health Services Research UNC-Chapel Hill; May 2001 2001.

48. Malterud K. The art and science of clinical knowledge: evidence beyond measures and numbers. *Lancet.* Aug 4 2001;358(9279):397-400.

49. Patton MQ. *Qualitative research & evaluation methods*. 3rd ed. Thousand Oaks, Calif.: Sage Publications; 2002.

50. Britten N. Qualitative interviews in medical research. *BMJ.* Jul 22 1995;311(6999):251-253.

51. WHO. Physician density per 1,000 population: World Health Organization; 2007.

52. Qualitative Research Guidelines Project, Purposeful Random Sampling, Robert Wood Johnson Foundation: Princeton, NJ.

53. Miles MB, Huberman AM. *Qualitative data analysis : an expanded sourcebook*. 2nd ed. Thousand Oaks: Sage Publications; 1994.

54. Glaser BG, Strauss AL. *The discovery of grounded theory; strategies for qualitative research*. Chicago,: Aldine Pub. Co.; 1967.

55. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res.* Aug 2007;42(4):1758-1772.

56. Bezuidenhout, M., et al., Reasons for doctor migration from South Africa. SA Fam Pract, 2009. 51(3): p. 211-215.

57. Mays N, Pope C. Rigour and qualitative research. *Bmj.* Jul 8 1995;311(6997):109-112.

58. Pope C, Ziebland S, Mays N. Qualitative research in health care. Analysing qualitative data. *Bmj.* Jan 8 2000;320(7227):114-116.

59. Curry LA, Nembhard IM, Bradley EH. Qualitative and mixed methods provide unique contributions to outcomes research. *Circulation.* Mar 17 2009;119(10):1442-1452.

60. Department of Health and Ageing. Health Workforce: Rural Medical Bonded Scholarships. http://www.health.gov.au/mrbscholarships.

61. Habte D, Dussault G, Dovlo D. Challenges confronting the health workforce in sub-Saharan Africa. *World Hosp Health Serv.* 2004;40(2):23-26, 40-21.

Legend: Titles for Table and Text Box

Table 1: Characteristics of Study Participants

Text Box 1: Interview Guide and Illustrative Probes

Table 1. Characteristics of Study Participants

Characteristic		Result*
Median Age (range), years		46 (30-65)
Female		11 (44)
Specialty		
	Family Practice	7 (28)
	Pediatrics	8 (32)
	Internal Medicine	10 (40)
Region of Origin		
	Sub-Saharan Africa	6 (24)
	South Asia	8 (32)
	East Asia	5 (20)
	Latin America	2 (8)
	Middle East	4 (16)
Years since completed residency		
	0-5 years	5 (20)
	6-10 years	6 (24)
	11-15 years	7 (28)
	16-20 years	3 (12)
	20-25 years	1 (4)
	>25 years	3 (12)
Mean number of physicians/1,000 in home country (range)		0.74 (0.03-1.88)

* Results are mean (range) for age and number (%) for all other variables

Text Box 1

1. Tell me about your experiences working in the United States as an IMG physician. Potential Probes:
   What is good (and/or challenging)about being an IMG physician?
   How has being an IMG physician influenced your professional life?
   Have you ever felt that your career choices were expanded (or limited) because you are an IMG physician?
2. Could you talk a little about sources of support during training and throughout your career? Potential Probes:
   Were there many other IMG physicians where you trained or where you work now and how does that affect your experience?
   Can you talk about your experience with formal and informal support networks?
   Were there any particular pieces of curriculum in your training that were helpful/unhelpful?
   Could you talk about sources of support that you think should exist for IMG physicians?
3. How are your professional relationships (with patients, other physicians, support staff) affected by your status as an IMG physician? Potential Probes:
   Have your workplace relationships differed in the various places where you have worked; if so, how?
4. Please share your thoughts on the phenomenon of physician migration either on a personal or a population level. Potential Probes:
   Current relationship with home country, feelings about migration
   Individual versus collective identity as an IMG physician

Qualitative research review guidelines – RATS

	ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT	✓
R	**Relevance of study question**		
	Is the research question interesting?	Research question explicitly stated	✖
	Is the research question relevant to clinical practice, public health, or policy?	Research question justified and linked to the existing knowledge base (empirical research, theory, policy)	✖
A	**Appropriateness of qualitative method**		
	Is qualitative methodology the best approach for the study aims? *Interviews:* experience, perceptions, behaviour, practice, process *Focus groups:* group dynamics, convenience, non-sensitive topics *Ethnography:* culture, organizational behaviour, interaction *Textual analysis:* documents, art, representations, conversations	Study design described and justified e.g., why was a particular method (i.e., interviews) chosen?	✖
T	**Transparency of procedures**		
	Sampling		
	Are the participants selected the most appropriate to provide access to type of knowledge sought by the study? Is the sampling strategy appropriate?	Criteria for selecting the study sample justified and explained *theoretical:* based on pre conceived or emergent theory *purposive:* diversity of opinion *volunteer:* feasibility, hard-to-reach groups	✖
	Recruitment		
	Was recruitment conducted using appropriate methods? Is the sampling strategy appropriate?	Details of how recruitment was conducted and by whom	✖
	Could there be selection bias?	Details of who chose not to participate and why	✖
	Data collection		
	Was collection of data systematic and comprehensive?	Method (s) outlined and examples given (e.g., interview questions)	✖
	Are characteristics of the study group and setting clear?	Study group and setting clearly described	✖
	Why and when was data collection stopped, and is this reasonable?	End of data collection justified and described	✖
	Role of researchers		
	Is the researcher (s) appropriate? How might they bias (good and bad) the conduct of the study and results?	Do the researchers occupy dual roles (clinician and researcher)? Are the ethics of this discussed?Do the researcher(s) critically examine their own influence on the formulation of the research question, data collection, and interpretation?	✖ ✖

Ethics		
Was informed consent sought and granted?	Informed consent process explicitly and clearly detailed	✖
Were participants' anonymity and confidentiality ensured?	Anonymity and confidentiality discussed	✖
Was approval from an appropriate ethics committee received?	Ethics approval cited	✖
S Soundness of interpretive approach		
Analysis		
Is the type of analysis appropriate for the type of study? *thematic:* exploratory, descriptive, hypothesis generating *framework:* e.g., policy *constant comparison/grounded theory:* theory generating, analytical	Analytic approach described in depth and justified	✖
Are the interpretations clearly presented and adequately supported by the evidence? Are quotes used and are these appropriate and effective?	*Indicators of quality:* Description of how themes were derived from the data (inductive or deductive) Evidence of alternative explanations being sought Analysis and presentation of negative or deviant cases Description of the basis on which quotes were chosen Semi-quantification when appropriate Illumination of context and/or meaning, richly detailed	✖ ✖
Was trustworthiness/reliability of the data and interpretations checked?	Method of reliability check described and justified e.g., was an audit trail, triangulation, or member checking employed? Did an independent analyst review data and contest themes? How were disagreements resolved?	✖
Discussion and presentation		
Are findings sufficiently grounded in a theoretical or conceptual framework? Is adequate account taken of previous knowledge and how the findings add?	Findings presented with reference to existing theoretical and empirical literature, and how they contribute	✖
Are the limitations thoughtfully considered?	Strengths and limitations explicitly described and discussed	✖
Is the manuscript well written and accessible?	Evidence of following guidelines (format, word count) Detail of methods or additional quotes contained in appendix Written for a health sciences audience	✖
		?
Are red flags present? these are common features of ill conceived or poorly executed qualitative studies, are a cause for concern, and must be viewed critically. They might be fatal flaws, or they may result from lack of detail or clarity.	*Grounded theory:* not a simple content analysis but a complex, sociological, theory generating approachJargon: descriptions that are trite, pat, or jargon filled should be viewed sceptically *Over interpretation:* interpretation must be grounded in "accounts" and semi-quantified if possible or appropriate *Seems anecdotal, self evident:* may be a	✖

	superficial analysis, not rooted in conceptual framework or linked to previous knowledge, and lacking depth *Consent process thinly discussed:* may not have met ethics requirements *Doctor-researcher:* consider the ethical implications for patients and the bias in data collection and interpretation	

International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2011-000138.R2
Article Type:	Research
Date Submitted by the Author:	06-Aug-2011
Complete List of Authors:	Chen, Peggy; Yale University School of Public Health, Health Policy and Administration Nunez-Smith, Marcella; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, General Internal Medicine Berg, David; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Medicine, Psychiatry Gozu, Aysegul; Franklin Square Hospital, Internal Medicine Curry, Leslie; Yale University School of Medicine, Robert Wood Johnson Foundation Clinical Scholars Program; Yale University School of Public Health, Health Policy and Administration
Primary Subject Heading:	Health service research
Keywords:	Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, International health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, PRIMARY CARE

International Medical Graduates in the United States: a Qualitative Study on Perceptions of Physician Migration

Chen PG,[1] Nunez-Smith M,[2,3] Berg D,[1,4] Gozu A,[5] Rulisa S,[6, 7] Curry LA,[1,2]

Chen PG: Division of Health Policy and Administration, Yale University School of Public Health, 47 College Street, New Haven CT 06520, United States, Post-doctoral fellow.

Nunez-Smith M: Section of General Internal Medicine, Yale University School of Medicine, PO BOX 208025, New Haven, CT 06520-8025, Assistant professor.

Berg D: Department of Psychiatry, Yale University School of Medicine, 300 George Street, New Haven, CT 06511-6624, Clinical professor.

Gozu A: Department of Internal Medicine, Franklin Square Hospital, 9105 Franklin Square Drive, Suite 312, Baltimore MD 21237, Director Internal Medicine Residency Program.

Rulisa S: Department of Clinical Research, University Teaching Hospital of Kigali, 1024 Rue de la Paix, PO Box 655, Kigali City, Kigali, Rwanda, Head of Clinical Research.

Curry L: Division of Health Policy and Administration, Yale University School of Public Health, PO BOX 208034, New Haven, CT 06520-8034, United States, Research scientist.

Corresponding author: Peggy Guey-Chi Chen, Department of Health Policy and Administration, Yale University School of Epidemiology and Public Health, 47 College Street; Room 104; New Haven, CT 06520; Tel 203.737.3556. peggy.chen@yale.edu.

Competing Interests

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that PC, MNS, DB, AG, SR and LC have no financial relationships that might have an interest in the submitted work; and PC, MNS, DB, AG, SR and LC have no non-financial interests that may be relevant to the submitted work.

Data sharing

Study protocol, interview guide and code structure available from corresponding author at peggy.chen@yale.edu. No additional data available. The authors were required by the Yale Human Investigations Committee to destroy all data following final analysis in order to protect the identities of the participants.

Funding

Funding for this study was provided by the Robert Wood Johnson Clinical Scholars Program, the Robert Wood Johnson Foundation and the Agency for Healthcare Research and Quality (T32 HS 017589-02T32). The research team was independent from the funders, who had no role in the collection, analysis, and interpretation of data; in the writing of the report; or the decision to submit the article for publication.

Article focus

- International medical graduates (IMGs) play a significant role in the health workforce in many nations.
- Prior literature has largely limited the consideration of physician migration to isolated factors such as financial pressures in home country or expanded training opportunities in the US.
- The experiences and perspectives of IMGs have not been included in current discussions surrounding physician migration.

Key messages

- Physician migration is influenced by multi-faceted aspects of experience including individual, environmental and political factors.
- IMGs report that both local and global health workforce policies have an impact on their personal and professional lives.
- A comprehensive understanding of physician migration is essential to the development of effective and appropriate solutions for global health workforce challenges.

Strengths and limitations of this study

Strengths

- Participants were diverse with regard to age, specialty, geographic regions of origin and years of clinical experience in the US.
- The study utilized recommended strategies to insure rigor.
- The high participation rate suggests this is an issue IMGs are motivated to discuss despite the potentially personal and sensitive nature of the topic.

Limitations

- As a qualitative study, the hyoptheses generated should be tested with larger, quantitative studies.
- The study was geographically circumscribed to metropolitan regions. Other regions, particularly rural areas, may present a substantially different environment and experience.

Abstract

Objectives

Physician migration from low-income to high-income nations is a global concern. Despite the centrality of understanding the perspectives of IMGs who have experienced migration to understanding the causes and consequences of this phenomenon, empirical literature is limited. The authors sought to characterize the experiences of IMGs from limited resource nations currently practicing primary care in the United States, with a focus on their perspectives on physician migration.

Design

The authors conducted a qualitative study utilizing in-depth, in-person interviews and a standardized interview guide. The sample comprised a diverse, purposeful sample of IMGs (n=25) from limited resource nations (defined as having ≤ 2 physicians per 1,000 population).

Results

Analyses revealed four recurrent and unifying themes reflecting the perspectives of IMGs in the United States on physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Conclusion

The perspectives of IMGs who have migrated to the US are an important addition to the ongoing discussion surrounding the global health workforce. Our findings highlight the effects

of workforce policies which are often developed and discussed in abstraction, but have real, measurable impacts on the lives of individuals. Future efforts to address physician migration will need to acknowledge the immediate needs of the health workforce as well as the long-term needs of individuals within health systems.

Background

Physician migration from low-income to high-income nations is a global concern.[1, 2] In the United States (US), United Kingdom, Canada and Australia migrant physicians account for 20% to 30% of the physician workforce.[1, 3, 4] In the US, international medical graduates (IMGs), defined as physicians who attended medical school outside the US or Canada play an important role in primary care,[5-10] care for vulnerable populations[11, 12] and care in physician shortage areas.[11, 13, 14] Significant literature has been dedicated to elucidating the potential costs of physician migration.[15-20] However, the motivations behind physician migration have been less thoroughly explored.

Extant literature has largely approached the reason for migration as a single decision point.[1, 21-24] Among health workers in the African diaspora, Clemens et al[25] reports an inverse relationship between economic and political stability and physician migration. Evidence from India indicates that perceived greater professional opportunities drive many potential migrant physicians.[26] Similarly, a survey in Pakistan indicated that low remuneration and poor training and work environment influenced potential migrant physicians.[27] Finally, factors such as changing medical school curricula,[17] and the greater likelihood of graduates from higher quality institutions to migrate have also been examined quantitatively.[28, 29]

Recent calls to approach physician migration as a symptom of problems in home country emphasize the need for greater understanding of the complex decisions leading to migration.[30]

Yet, prior studies have not utilized qualitative methods to capture these complex experiences that contribute to migration. The policy debate surrounding physician migration in the US is multi-faceted, with recommendations to limit physician migration[21, 31-42] weighed against the decisions of individual physicians[43, 44] and ongoing gaps in the US physician workforce.[45-47] The perspectives of IMGs who have migrated and subsequently chosen to remain in the US are vital to developing a comprehensive understanding of the causes and consequences of physician migration. They may also improve understanding of the effects of workplace and workforce policies and contribute to creative approaches for addressing domestic and global workforce challenges. In this analysis, we sought to characterize the experiences of IMGs from limited resource nations currently practicing in the US with a focus on their perspectives on the phenomenon of physician migration.

Methods

We chose a qualitative design to characterize participant perspectives and generate hypotheses for future testing in larger, quantitative studies. This approach is optimal for capturing the essential aspects of a phenomenon from the perspective of study participants, when addressing potentially sensitive subjects, and when there may be fear of reprisals or repercussions.[48, 49]

Study Design and Sampling

We conducted one-on-one interviews[50] with non-US born IMG physicians who completed residency training in the US and were in outpatient primary care practice (family medicine, internal medicine and paediatrics). Physicians were included if their home country met our definition of a limited-resource nation: countries identified by the World Health Organization as having < 2 physicians per 1,000 individuals in the population (the United States has 2.56 physicians per 1,000 individuals).[51] To construct the sample, we utilized the strategy of random purposeful sampling[49, 52] in which groups of interest (gender, specialty, region of origin) were identified and key informants within each group were randomly selected to achieve a diverse sample.

We identified potential participants through: the American Medical Association's IMG Section roster; state licensure board databases for Connecticut, New York and New Jersey; and department chairs at regional institutions. Recruitment and data collection were conducted until thematic saturation,[49] the point at which no new concepts emerge from subsequent interviews, was achieved. The Human Investigation Committee at Yale University School of Medicine approved the research protocol. All participants provided verbal informed consent. In total, 27 physicians were contacted and 25 agreed to participate (93% participation rate). Two physicians declined to participate due to scheduling conflicts.

Data Collection

One researcher (PC), a paediatrician, a second-generation immigrant and member of an ethnic minority group, conducted all in-person interviews.

The interview guide (Text Box) consisted of open-ended, 'grand tour' questions[49, 53] including: "Please share your thoughts on physician migration either on a personal level or from a population level." Probes were used to encourage clarification and elaboration on specific sources of support. Probes are not standardized, and their use is highly contextual for each interview.[49] Interviews were audio-taped, professionally transcribed and reviewed to ensure accuracy. Interviews lasted an average of 45 minutes and participants completed a brief demographic survey at the conclusion of the interview.

Analysis

Analysis was performed by a 5-person multidisciplinary team including a paediatrician, family physician, internists (including an IMG), an organizational psychologist, and health services researchers each with training and expertise in qualitative methods. We developed a code structure in stages and in accordance with principles of grounded theory,[54] using systematic, inductive procedures to generate insights grounded in the views expressed by study participants.

First, the full research team independently coded three transcripts, meeting to negotiate consensus over differences in independent coding. We developed codes, or tags to classify

data inductively,[54] drafting an integrated code structure.[55] We used the constant comparison method[55] to insure that emergent themes were consistently classified, expand on existing codes, identify novel concepts and refine codes. Second, a core team of three analysts (PC, SB and AG) independently coded all remaining transcripts and reconciled differences through consensus; the full team participated in analysis meetings and finalized a comprehensive code structure capturing all data concepts related to physician migration. PC then systematically applied the final code structure to all transcripts.

At several stages throughout the iterative process of data collection and analysis, we conducted participant confirmation[48, 49, 55] in which summary results were distributed to participants to confirm the developing themes accurately reflected participants' experience. We used qualitative analysis software (ATLAS.ti 5.0, Scientific Software Development, Berlin, Germany) to facilitate data organization and retrieval.

Results:

Demographics

Our final sample consisted of 25 IMG physicians (Table 1). We achieved broad representation with regard to age, specialty, geographic region of origin and years of clinical experience in the US. The mean number of physicians per 1,000 of the population in participants' home country was 0.74 (range 0.03-1.88, US=2.56). All respondents were at various stages in the process of seeking permanent residency status or citizenship in the US.

Themes

Our focused analysis revealed four recurrent and unifying themes which reflect the perspectives of IMGs in this study regarding physician migration: 1) decisions to migrate were pragmatic decisions made in the context of individual circumstance; 2) the act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways; 3) the ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US; 4) effects of policies in both home country and in the US occurred at multiple levels.

Decisions to migrate were pragmatic decisions made in the context of individual circumstance

Participants' decisions to leave home country resulted from particularities of their situation, such as economic conditions, political environments and opportunities for professional advancement. This family practitioner from East Asia emphasized the realities of life at home:

> "*When you are raised in a third world country, your outlook is on survival. It is not on the nebulous concept of, will I deprive my countrymen if I leave. That is a big difference in thinking... Over here, on a resident's salary ... you won't have luxuries, but you won't go hungry... It is a matter of survival... If I could have the same standard of living I have here as I do in [home country] would I prefer to practice in [home country]? Yes.*"

For this internist from the Middle East, the decision to leave home country had been the result of an untenable political situation, highlighting the trade-offs inherent in migration:

"I came [here] because … there was no hope that they were going to turn the country back into a democratic, civilized country. And so America has nothing to do with it. It's not like a magnet that they welcome us and we stayed. It's the condition that we run away from… you're choosing between … worse and worst. Whether you want to go through the culture shock and language shock and all the barriers as … goddamn foreigner, or you want to stay in your country, which you belong to, you were raised in, but have no quality of life… So that is why people run away and come to America."

Similarly, this paediatrician from the Middle East described the decision to migrate as defending a quality of life that had been eroded as a result of civil conflict, emphasizing a difference between temporary migration for educational purposes, and the more permanent status of immigration.

"We weren't a starving country. It was one of the oil producers, so we had the good things. Usually as physicians, you live very good, so we didn't have much of physician immigration. Most of the physicians who will go to study… they came back… I personally never thought of leaving the country unless for studying, not for immigration. I [would] never thought of immigration if not for the political situation. "

This individual also expressed that governments of both low and high income nations have a role to play in enabling physicians to remain in their home countries:

"We can lead the doctors back towards their countries … [but] then we have to provide for them there. They want to stay, let's help them stay. Most important is to help them develop some middles, like nurses and technicians… having programs to talk about … improving health systems … even when you bring people [to the US] for training and you

make it difficult for them to stay, I think it is okay in a way… but it is not enough... if people want to stay here, they will find a way to stay… you have to look in other ways to keep physicians in their countries by having them be part of a global program to improve that."

Finally, this paediatrician from sub-Saharan Africa described his own migration to pursue professional opportunities not easily available at home.

"*Personally, the reason why I came is to seek knowledge and I could quickly get it here... unlike in [home country] … … you might have to pay somebody … like hanky panky. You can do very good here… play by the rules, pass the exams and graduate…*"

The act of migration ultimately affected participants' ability to return home in multiple, unpredictable ways

Even participants who initially did not plan to remain in the US described how migration had changed them both personally and professionally. Moreover, in many instances, their home countries had also changed in their absence. Participants were thus hesitant to return to home country for logistic, professional and cultural reasons. This internist from sub-Saharan Africa, who initially migrated because of a civil war at home, described the first trip home after the conflict had ended and his realization that a permanent return was unlikely.

"*People would see me … and I would hear oh, he's so American.... You just -- you don't fit in anymore…you can't go back, as they say. It's really true... I [had] wanted the government to fall so I could go back… that happened and yet … it was a big disappointment…*"

For this internist from South Asia, migration and working as a physician in the US revealed conditions at home she had not noticed prior to her migration.

> *"Professionally, now since I have been practicing… here… when I go back … and see… sometimes maybe the area is not so clean... maybe it is because there is so much demand and there are so many patients and the expenses and everything. They do not have structured medical system... you see all those differences more clearly once you have been here…When I was there, that was all normal and part of it and there was nothing really glaring about it, but now I go back from here and I see it…"*

This family practitioner from Latin America described professional and practice differences that factored into the decision to remain in the US rather than return home.

> *"[At home] it is a cash business... you are really just caring or serving the people who can pay you… I've even heard docs [at home] say… don't cure it on the first visit because then … you only get paid once, whereas if you give something that's not going to take care of it… they will come in for a second visit … I don't think I would be able to adapt to that again."*

The ongoing process of acclimation was coupled with inherent conflicts surrounding the decision to remain in the US

Although participants had left their home country for a variety of reasons, all had either completed or were in the process of seeking permanent residency status or citizenship in the US. While all acknowledged their commitment and desire to remain in the US, participants also

described ongoing guilt resulting from this decision. For this paediatrician from sub-Saharan Africa, the struggles stemmed from his perception of being trapped by multiple responsibilities and expectations.

> *"My intention was when I first came over was to… do my residency and go home … but then … with all of these immigration problems, no money, you can't go back, you get trapped in the system. There is no going back ... even after acquiring this knowledge, I can't help my people… there are plenty physicians [in the US] who can do the same thing I do … back home there are not many people who can do the same thing I do…"*

Another paediatrician from sub-Saharan Africa believed that his skills were not being effectively used in the US, but acknowledged that this allowed his family to live and work in the US.

> *"I'm very much conscious of the fact that I'm working in an area where … there are many, many doctors to take care of the people. In [home country], I could work in an area where … I would be saving some lives every day. That has been a bit of an adjustment, although I always have to just consider my family as a whole… I do look back and … I was …doing more for somebody's life 20 years ago than I do on a daily basis here."*

This internist from South Asia described a desire, echoed by many participants, to give back to home country as a form of repayment for education and other investments the country had made in him.

> *"I thought... I should go back... because I owe them my medical school education. So I ... spoke a couple of times... went to visit a couple of times. Almost every year or every*

other year I go if I get a chance... Even if it's for a week I go there and I try to do as much as I can... I owe this to my country."

Effects of policies in both home country and in the US occurred at multiple levels

Although participants ultimately made migration-related decisions based on individual needs and goals, there was a high level of awareness of the downstream effects of local, national and international policies. This paediatrician from sub-Saharan Africa noted that, while many physicians at home sought to come to the US for increased educational opportunities, licensing restrictions in home countries meant that many did not return home because of the additional commitment of time and energy this would require.

"Strangely, my training …here is not actually good enough to be a paediatrician in [home country]. I'm like a primary care doctor … but to be a paediatrician I would have to go back to the hospital and do some more training… until I passed … a national exam … each year, there might only be about 5 or 6 paediatricians qualifying in the entire country…"

This internist from the Middle East recalled an attempt to modernize the medical school in home country:

"So he took the responsibility to come to U.S. and copy the curriculum of the medical school … and build that medical school and the affiliated hospitals... Our books were packed from U.S. I mean, when we went to buy our Harrison, I could see they were just ripping the boxes just from U.S., taking out of the cellophane, and sell[ing] it right there. Our stethoscope, everything. Everything came from U.S."

This individual commented that the modernized hospital essentially served only the elites of the country with training was better suited for ultimate practice in Western nations than in many parts of home country.

Participants also noted that, due to the expense, time commitment and licensing requirements, only certain physicians are able to take part in physician migration. This has potential negative effects on the remaining workforce. This internist from the Middle East remarked:

> "*It comes from bad policies … People are leaving and it becomes a vicious cycle. The more people who are capable leave, the more inept people come into the power which makes the life more miserable for more capable people so the more capable people will leave.*"

Finally, this paediatrician from sub-Saharan Africa, who maintains extensive ties with home country, commented that while many physicians at home migrated to higher-income nations, his home country had, in turn, recruited physicians from lower-income nations.

> "*I go back to [home country] every year… We are very much aware of the medical system in [home country] … They lost large numbers of physicians who… went everywhere in the world and [home country] has become a magnet for … physicians from the rest of Africa... So in turn, the vacuum has been filled by the immigration.*"

Discussion

We conducted an in-depth, systematic exploration of experiences of primary care physicians who migrated from limited resource nations to the US. Our findings indicate decisions surrounding migration were generally based on individual needs and goals, resulting from a

confluence of circumstance in home country. Subsequent decisions to remain in the US were frequently unplanned and unintentional, stemming from changes that result from migration and acculturation, as well as circumstances making return to home country unpalatable or impossible. Finally, despite the emphasis on individual motivations in the migration decision, in reflection participants viewed their decisions in more abstract terms: revealing ongoing struggles with their decisions, opinions on necessary elements for improving the situation in their home countries, and consideration of the effect of their migration on the global health workforce.

These findings have generated hypotheses that might be examined in future work. The current study suggests that these hypotheses include: a) physician migration is influenced by both personal and environmental circumstances; b) as initially conceived by IMGs, physician migration is largely intended to be temporary; and c) decisions to remain in host country permanently are influenced by specific costs and benefits afforded by remaining in host country. These broad hypotheses inform future research questions such as: to what extent is physician migration influenced by individual factors, such as personal and professional goals, compared with political and economic circumstances of home countries? What factors are associated with temporary versus permanent physician migrants? What are the relative effects of specific factors contributing to the transition from temporary to permanent migration? Such data may assist both home and host countries in designing policies to minimize the impact of physician migration.

Importantly, our findings reflect prior work indicating the role of economic and political stability,[25] professional opportunities,[26] poor work environment[27] and sub-optimal workforce dynamics.[28, 29] This study expands the framework to include intended and unintended effects of workforce policies and the broader contexts within which migration decisions are made. While economic and political stability may ultimately result in the retention of many potential migrants, such stability is the result of slow change over time and must include steps toward building human capital. A uniform standard for principles of education and training may be part of this solution, acknowledging the global nature of the health workforce and enabling personal advancement while augmenting human capital at home. Partnerships between limited resource nations and destination country institutions, through research networks or clinical collaborations offer further opportunities for capacity building in limited resource nations. Finally, medical education is typically provided at low or no cost in limited resource nations, representing a loss of investment when physicians migrate. Proposals to recoup this investment, such as educational bonding schemes[3, 56] and better regulation and mandated compensation from destination countries to to limited resource nations[15] require systematic examination.

Our findings should be interpreted in light of the potential limitations of the study. First, as a qualitative study, this work is exploratory in nature. Conclusions are not meant to be generalized. We sought to characterize a range of experiences among a diverse group of IMGs to generate hypotheses that may be tested in future, quantitative studies. Second, we focused on IMG physicians in outpatient primary care specialties because of the concentration of IMGs

in these fields. Experiences of IMG physicians in other specialties may differ, particularly in more competitive specialties with fewer IMGs. Additionally, our study was geographically circumscribed to New York, New Jersey and Connecticut, largely metropolitan regions of the country. IMGs in other geographic regions, particularly rural areas, may have different perspectives. Finally, this study did not examine the perceptions and decision-making processes of physicians who returned to limited resource countries following training in the US. Such data may shed additional light on the relevant issues, though their global distribution makes this data difficult to capture.

There are also a number of strengths to our study. First, participants were diverse with regard to age, specialty, geographic origin and years of clinical experience in the US. Despite this diversity, the commonalities in participants' experiences and perceptions of physician migration were reflected in the recurring and unifying themes reported. Second, we utilized a number of recommended strategies to insure rigor: consistent use of an interview guide; audio-taping and independent transcription; standardized coding and analysis; use of researchers with diverse racial/ethnic and professional backgrounds; an audit trail to document analytic decisions; and participant confirmation in which participants reviewed a summary of the data and endorsed the content of the themes.[48, 49, 57-59] Third, our high participation rate suggests that this is an issue IMGs are motivated to discuss in a research context, despite the potentially personal and sensitive nature of the topic.

Global health workforce shortages must be addressed in the context of a comprehensive understanding of motivations. The accurate reflections and perspectives of IMGs are an important addition to ongoing discussions over potential solutions to the global health workforce crisis.[60, 61] Our findings highlight the effect of workforce policies, which are often developed and discussed in abstraction, but have real and measurable impacts on individual lives. Ongoing discussions must include the role and responsibilities of high-income nations as well as the actions of limited income nations to arrive at effective strategies for the global health workforce as a whole and the individuals within it.

Conclusion

In 1994, the International Conference on Population and Development concluded: "the long-term manageability of international migration hinges on making the option to remain in one's country a viable one for all people."[41] Migrating physicians make difficult decisions to leave the countries in which they were born, reared and schooled as the result of a confluence of factors leading participants to believe they lacked a future in their home countries either professionally or personally. Attempts to address physician migration will need to address not only the immediate needs of the healthcare delivery workforce, but also the long-term needs of individuals and health systems. Although the road to an ultimate solution may be long, our findings indicate that even small steps toward the end goal may have beneficial effects on the workforce by providing individuals with hope for their futures in their own countries. Such small efforts, taken together over time, can build individuals' faith that health systems can evolve to support the practice of high quality medicine with good outcomes for all

Authors Contributions

PC, MNS and LC conceived of and designed the study. PC, MNS, DB, AG, SR and LC contributed to the analysis and interpretation of data. PC, MNS and LC drafted the article. PC, MNS, DB, AG, SR and LC revised the article critically for important intellectual content. PC, MNS, DB, AG, SR and LC provided final approval of the version to be published. All authors, external and internal, had full access to all of the data in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Acknowledgements

The authors thank Susannah Bernheim (SB) for contributions to data analysis and interpretation; the American Medical Association IMG section for assistance in recruiting; the Educational Foundation for Foreign Medical Graduates for helpful comments; Dr. Jishnu Das and Dr. Luis Gabriel Cuervo for their contributions in the peer review process; and all physicians who participated in this study.

References

1. Mejía A, Pizurki H, Royston E, World Health Organization. *Physician and nurse migration: analysis and policy implications : report of a WHO study*. Geneva [Albany, N.Y.: World Health Organization ; obtainable from WHO Publications Centre USA]; 1979.
2. Zurn P, Dal Poz MR, Stilwell B, Adams O. Imbalance in the health workforce. *Hum Resour Health.* Sep 17 2004;2(1):13.
3. Martineau T, Decker K, Bundred P. "Brain drain" of health professionals: from rhetoric to responsible action. *Health Policy.* Oct 2004;70(1):1-10.
4. Mullan F, Politzer RM, Davis CH. Medical migration and the physician workforce. International medical graduates and American medicine. *Jama.* May 17 1995;273(19):1521-1527.
5. AMA. IMGs in the United States. *American Medical Association*; 2007.
6. Polsky D, Kletke PR, Wozniak GD, Escarce JJ. Initial practice locations of international medical graduates. *Health Serv Res.* Aug 2002;37(4):907-928.
7. Rao V, Cabbabe E, Adams K, et al. *International Medical Graduates in the U.S. Workforce.* Chicago, IL: American Medical Association; October 2007.
8. Smart D. Physician Characteristics and Distribution in the US - 2006. *American Medical Association.* 2006 2006;Chicago, Ill.
9. NRMP. Advanced Data Tables for 2007 Main Residency Match. *National Residency Match Program*; 2007:Table 5.
10. Pugno PA, Schmittling GT, Fetter GT, Jr., Kahn NB, Jr. Results of the 2005 national resident matching program: family medicine. *Fam Med.* Sep 2005;37(8):555-564.
11. Hing E, Lin S. Role of international medical graduates providing office-based medical care: United States, 2005-2006. *NCHS Data Brief.* Feb 2009(13):1-8.
12. Morris AL, Phillips RL, Fryer GE, Jr., Green LA, Mullan F. International medical graduates in family medicine in the United States of America: an exploration of professional characteristics and attitudes. *Hum Resour Health.* 2006;4:17.
13. Cohen JJ. The role and contributions of IMGs: a U.S. perspective. *Acad Med.* Dec 2006;81(12 Suppl):S17-21.
14. Mick SS, Lee SY, Wodchis WP. Variations in geographical distribution of foreign and domestically trained physicians in the United States: 'safety nets' or 'surplus exacerbation'? *Soc Sci Med.* Jan 2000;50(2):185-202.
15. Mills EJ, Schabas WA, Volmink J, et al. Should active recruitment of health workers from sub-Saharan Africa be viewed as a crime? *Lancet.* Feb 23 2008;371(9613):685-688.
16. Mullan F. The metrics of the physician brain drain. *N Engl J Med.* Oct 27 2005;353(17):1810-1818.
17. Loefler IJ. Medical migration. *Lancet.* Sep 30 2000;356(9236):1196.
18. Buchan J, Jobanputra R, Gough P, Hutt R. Internationally recruited nurses in London: a survey of career paths and plans. *Hum Resour Health.* 2006;4:14.
19. World Health Organization. *Working for health : an introduction to the World Health Organization*. Geneva: World Health Organization; 2006.

20. Chen L, Evans T, Anand S, et al. Human resources for health: overcoming the crisis. *Lancet.* Nov 27-Dec 3 2004;364(9449):1984-1990.

21. Ahmad OB. Managing medical migration from poor countries. *Bmj.* Jul 2 2005;331(7507):43-45.

22. Klein D, Hofmeister M, Lockyear J, Crutcher R, Fidler H. Push, pull, and plant: the personal side of physician immigration to Alberta, Canada. *Fam Med.* Mar 2009;41(3):197-201.

23. Siringi S. Kenya government promises to increase doctors' salaries to curb brain drain. *Lancet.* Jul 28 2001;358(9278):307.

24. Kavalier F. Uganda: death is always just around the corner. *Lancet.* Jul 11 1998;352(9122):141-142.

25. Clemens, M.A. and G. Pettersson, New data on African health professionals abroad. Hum Resour Health, 2008. 6: p. 1.

26. Rao, N.R., U.K. Rao, and R.A. Cooper, Indian medical students' views on immigration for training and practice. Acad Med, 2006. 81(2): p. 185-8.

27. Syed, N.A., et al., Reasons for migration among medical students from Karachi. Med Educ, 2008. 42(1): p. 61-8.

28. Kaushik, M., et al., High-end physician migration from India. Bull World Health Organ, 2008. 86(1): p. 40-5.

29. Kaushik, M., et al., Quality of medical training and emigration of physicians from India. BMC Health Serv Res, 2008. 8: p. 279.

30. Clemens, M. (2010) Health Worker Migration: Disease or Symptom? Global Health, Global Affairs Council, Winter 2010.

31. Bundred PE, Levitt C. Medical migration: who are the real losers? *Lancet.* Jul 15 2000;356(9225):245-246.

32. Hagopian A, Thompson MJ, Fordyce M, Johnson KE, Hart LG. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Hum Resour Health.* Dec 14 2004;2(1):17.

33. Patel V. Recruiting doctors from poor countries: the great brain robbery? *Bmj.* Oct 18 2003;327(7420):926-928.

34. Narasimhan V, Brown H, Pablos-Mendez A, et al. Responding to the global human resources crisis. *Lancet.* May 1 2004;363(9419):1469-1472.

35. Pang T, Lansang MA, Haines A. Brain drain and health professionals. *Bmj.* Mar 2 2002;324(7336):499-500.

36. de Mesquita JB, Gorden M. *The International Migration of Health Workers: A Human Rights Analysis.* London, UK 2005.

37. Physicians for Human Rights. *An Action Plan to Prevent Brain Drain: Building Equitable Health Systems in Africa.* Boston, MA 2004.

38. World Health Organization. International recruitment of health personnel: draft global code of practice. Paper presented at: 126th Session, 2009; Geneva.

39. World Health Organization. WHO Global Code of Practice on International Recruitment of Health Personnel. Paper presented at: Sixty-Third World Health Assembly, 2010; Geneva.

40. Stilwell B, Diallo K, Zurn P, Vujicic M, Adams O, Dal Poz M. Migration of health-care workers from developing countries: strategic approaches to its management. *Bull World Health Organ.* Aug 2004;82(8):595-600.

41. *International Conference on Population and Development Cairo, Egypt, 5-13 September 1994* [microform:]. [Cairo]: United Nations; 1994.

42. Second World Rural Health Congress Conference Committee. Second World Rural Health Congress 1997; Durban, South Africa.

43. Srivastava R. A bridge to nowhere--the troubled trek of foreign medical graduates. *N Engl J Med.* Jan 17 2008;358(3):216-219.

44. Amore LGC. My part in the "brain drain". *BMJ.* September 30, 2000 2000;321(7264):841.

45. Association of American Medical Colleges. *Physician Shortages to Worsen Without Increases in Residency Training.* Chicago, IL: AAMC; 2010.

46. Biviano M, Makarehchi F. National Center for Health Workforce Analysis: Globalization and the Physician Workforce in the United States. *Sixth International Medical Workforce Conference*. Ottowa, Canada: US Department of Health and Human Services: Health Resources and Services Administration; 2002.

47. Baer LD, Konrad TR, Slifkin RT. *If Fewer International Medical Graduates are Allowed in the US, Who Might Replace Them in Rural, Underserved Areas?* Chapel Hill, NC: NC Rural Health Research and Policy Analysis Program Cecil G. Sheps Center for Health Services Research UNC-Chapel Hill; May 2001 2001.

48. Malterud K. The art and science of clinical knowledge: evidence beyond measures and numbers. *Lancet.* Aug 4 2001;358(9279):397-400.

49. Patton MQ. *Qualitative research & evaluation methods*. 3rd ed. Thousand Oaks, Calif.: Sage Publications; 2002.

50. Britten N. Qualitative interviews in medical research. *BMJ.* Jul 22 1995;311(6999):251-253.

51. WHO. Physician density per 1,000 population: World Health Organization; 2007.

52. Qualitative Research Guidelines Project, Purposeful Random Sampling, Robert Wood Johnson Foundation: Princeton, NJ.

53. Miles MB, Huberman AM. *Qualitative data analysis : an expanded sourcebook*. 2nd ed. Thousand Oaks: Sage Publications; 1994.

54. Glaser BG, Strauss AL. *The discovery of grounded theory; strategies for qualitative research*. Chicago,: Aldine Pub. Co.; 1967.

55. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res.* Aug 2007;42(4):1758-1772.

56. Bezuidenhout, M., et al., Reasons for doctor migration from South Africa. SA Fam Pract, 2009. 51(3): p. 211-215.

57. Mays N, Pope C. Rigour and qualitative research. *Bmj.* Jul 8 1995;311(6997):109-112.

58. Pope C, Ziebland S, Mays N. Qualitative research in health care. Analysing qualitative data. *Bmj.* Jan 8 2000;320(7227):114-116.

59. Curry LA, Nembhard IM, Bradley EH. Qualitative and mixed methods provide unique contributions to outcomes research. *Circulation.* Mar 17 2009;119(10):1442-1452.

60. Department of Health and Ageing. Health Workforce: Rural Medical Bonded Scholarships. http://www.health.gov.au/mrbscholarships.

61. Habte D, Dussault G, Dovlo D. Challenges confronting the health workforce in sub-Saharan Africa. *World Hosp Health Serv.* 2004;40(2):23-26, 40-21.

Legend: Titles for Table and Text Box

Table 1: Characteristics of Study Participants

Text Box 1: Interview Guide and Illustrative Probes

Table 1. Characteristics of Study Participants

Characteristic		Result*
Median Age (range), years		46 (30-65)
Female		11 (44)
Specialty		
	Family Practice	7 (28)
	Pediatrics	8 (32)
	Internal Medicine	10 (40)
Region of Origin		
	Sub-Saharan Africa	6 (24)
	South Asia	8 (32)
	East Asia	5 (20)
	Latin America	2 (8)
	Middle East	4 (16)
Years since completed residency		
	0-5 years	5 (20)
	6-10 years	6 (24)
	11-15 years	7 (28)
	16-20 years	3 (12)
	20-25 years	1 (4)
	>25 years	3 (12)
Mean number of physicians/1,000 in home country (range)		0.74 (0.03-1.88)

* Results are mean (range) for age and number (%) for all other variables

Text Box 1

1. Tell me about your experiences working in the United States as an IMG physician. Potential Probes:
   What is good (and/or challenging)about being an IMG physician?
   How has being an IMG physician influenced your professional life?
   Have you ever felt that your career choices were expanded (or limited) because you are an IMG physician?
2. Could you talk a little about sources of support during training and throughout your career? Potential Probes:
   Were there many other IMG physicians where you trained or where you work now and how does that affect your experience?
   Can you talk about your experience with formal and informal support networks?
   Were there any particular pieces of curriculum in your training that were helpful/unhelpful?
   Could you talk about sources of support that you think should exist for IMG physicians?
3. How are your professional relationships (with patients, other physicians, support staff) affected by your status as an IMG physician? Potential Probes:
   Have your workplace relationships differed in the various places where you have worked; if so, how?
4. Please share your thoughts on the phenomenon of physician migration either on a personal or a population level. Potential Probes:
   Current relationship with home country, feelings about migration
   Individual versus collective identity as an IMG physician

Qualitative research review guidelines – RATS

	ASK THIS OF THE MANUSCRIPT	THIS SHOULD BE INCLUDED IN THE MANUSCRIPT	✓
R	**Relevance of study question**		
	Is the research question interesting?	Research question explicitly stated	✖
	Is the research question relevant to clinical practice, public health, or policy?	Research question justified and linked to the existing knowledge base (empirical research, theory, policy)	✖
A	**Appropriateness of qualitative method**		
	Is qualitative methodology the best approach for the study aims? *Interviews:* experience, perceptions, behaviour, practice, process *Focus groups:* group dynamics, convenience, non-sensitive topics *Ethnography:* culture, organizational behaviour, interaction *Textual analysis:* documents, art, representations, conversations	Study design described and justified e.g., why was a particular method (i.e., interviews) chosen?	✖
T	**Transparency of procedures**		
	Sampling		
	Are the participants selected the most appropriate to provide access to type of knowledge sought by the study? Is the sampling strategy appropriate?	Criteria for selecting the study sample justified and explained *theoretical:* based on pre conceived or emergent theory *purposive:* diversity of opinion *volunteer:* feasibility, hard-to-reach groups	✖
	Recruitment		
	Was recruitment conducted using appropriate methods? Is the sampling strategy appropriate?	Details of how recruitment was conducted and by whom	✖
	Could there be selection bias?	Details of who chose not to participate and why	✖
	Data collection		
	Was collection of data systematic and comprehensive?	Method (s) outlined and examples given (e.g., interview questions)	✖
	Are characteristics of the study group and setting clear?	Study group and setting clearly described	✖
	Why and when was data collection stopped, and is this reasonable?	End of data collection justified and described	✖
	Role of researchers		
	Is the researcher (s) appropriate? How might they bias (good and bad) the conduct of the study and results?	Do the researchers occupy dual roles (clinician and researcher)? Are the ethics of this discussed?Do the researcher(s) critically examine their own influence on the formulation of the research question, data collection, and interpretation?	✖ ✖

Ethics		
Was informed consent sought and granted?	Informed consent process explicitly and clearly detailed	✖
Were participants' anonymity and confidentiality ensured?	Anonymity and confidentiality discussed	✖
Was approval from an appropriate ethics committee received?	Ethics approval cited	✖
S Soundness of interpretive approach		
Analysis		
Is the type of analysis appropriate for the type of study? *thematic:* exploratory, descriptive, hypothesis generating *framework:* e.g., policy *constant comparison/grounded theory:* theory generating, analytical	Analytic approach described in depth and justified	✖
Are the interpretations clearly presented and adequately supported by the evidence? Are quotes used and are these appropriate and effective?	*Indicators of quality:* Description of how themes were derived from the data (inductive or deductive) Evidence of alternative explanations being sought Analysis and presentation of negative or deviant cases Description of the basis on which quotes were chosen Semi-quantification when appropriate Illumination of context and/or meaning, richly detailed	✖ ✖
Was trustworthiness/reliability of the data and interpretations checked?	Method of reliability check described and justified e.g., was an audit trail, triangulation, or member checking employed? Did an independent analyst review data and contest themes? How were disagreements resolved?	✖
Discussion and presentation		
Are findings sufficiently grounded in a theoretical or conceptual framework? Is adequate account taken of previous knowledge and how the findings add?	Findings presented with reference to existing theoretical and empirical literature, and how they contribute	✖
Are the limitations thoughtfully considered?	Strengths and limitations explicitly described and discussed	✖
Is the manuscript well written and accessible?	Evidence of following guidelines (format, word count) Detail of methods or additional quotes contained in appendix Written for a health sciences audience	✖
		?
Are red flags present? these are common features of ill conceived or poorly executed qualitative studies, are a cause for concern, and must be viewed critically. They might be fatal flaws, or they may result from lack of detail or clarity.	*Grounded theory:* not a simple content analysis but a complex, sociological, theory generating approachJargon: descriptions that are trite, pat, or jargon filled should be viewed sceptically *Over interpretation:* interpretation must be grounded in "accounts" and semi-quantified if possible or appropriate *Seems anecdotal, self evident:* may be a	✖

	superficial analysis, not rooted in conceptual framework or linked to previous knowledge, and lacking depth *Consent process thinly discussed:* may not have met ethics requirements *Doctor-researcher:* consider the ethical implications for patients and the bias in data collection and interpretation	