

Physician migration: Views from professionals in Colombia, Nigeria, India, Pakistan and the Philippines[☆]

Avraham Astor^a, Tasleem Akhtar^b, María Alexandra Matallana^c,
Vasantha Muthuswamy^d, Folarin A. Olowu^e, Veronica Tallo^f, Reidar K. Lie^{a,*}

^aDepartment of Clinical Bioethics, National Institutes of Health, Room 1C118, Building 10, Bethesda, MD 20892, USA

^bPakistan Medical Research Council, Islamabad, Pakistan

^cCendex, Pontificia Universidad Javeriana, Bogotá, Colombia

^dIndian Council of Medical Research, New Delhi, India

^eIntellfit Africa Training Center, Lagos, Nigeria

^fResearch Institute for Tropical Medicine, Department of Health, Philippines

Available online 13 June 2005

Abstract

There has been much debate recently about several issues related to the migration of physicians from developing to developed countries. However, few studies have been conducted to address these issues in a systematic fashion. In an attempt to begin the process of generating systematic data, we designed and distributed a questionnaire addressing several core issues surrounding physician migration to respondents selected on the basis of their special expertise or experience in India, Nigeria, Pakistan, Colombia, and the Philippines. The issues addressed relate to the reasons physicians migrate to developed countries, how migration is related to the structure of medical education, the effect that migration has on the health care infrastructure of developing countries, and various policy options for dealing with physician migration. Though responses varied somewhat by country, a desire for increased income, greater access to enhanced technology, an atmosphere of general security and stability, and improved prospects for one's children were the primary motivating factors for physician migration. A majority of respondents believed that physicians in developing countries are provided with highly specialized skills that they can better utilize in developed countries, but respondents were ambivalent with respect to the utility of educational reform. Responses varied significantly by country with regard to whether physician migration results in physician shortages, but there was widespread agreement that it exacerbates shortages in rural and public settings. With respect to policy options, increasing physician income, improving working conditions, requiring physicians to work in their home countries for a period following graduation from medical school, and creating increased collaboration between health ministries in developed and developing countries found the most favor with respondents.

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Keywords: Physician migration; Health policy; Developing countries; India; Pakistan; Nigeria; Columbia; The Philippines

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*Corresponding author. Tel.: +1 240 423 1497.

E-mail address: rlie@cc.nih.gov (R.K. Lie).

Introduction

Over the last half-century, there has been a significant increase in the number of physicians who have migrated between countries, especially from developing to developed countries. In Canada, 23% of practicing

physicians are trained abroad, while in the US, international medical graduates account for 23.5% of all physicians and 24% of all medical residents (American Medical Association; Buske, 2002). Several events have contributed to this phenomenon. During the 1960s and 1970s, governments in developing countries used subsidies to promote the expansion of physician training in order to meet the primary health care needs of their populations. The health care systems in many of these countries could not absorb the trainees, leading a large number of physicians to seek employment elsewhere (World Bank, 1993). In addition, the increasing conformity of medical curricula with international standards for medical training, the internationalization of the English language, and the willingness of physicians educated in developing countries to work in rural and other undesirable locations in developed countries have made them a prime target for recruitment (Gish & Godfrey, 1979).

Concern about the negative effects of physician migration on the health care infrastructure of developing countries was a focal point of both the 2002 and 2004 World Health Assemblies. The National Health Service in the United Kingdom has enacted a Code of Practice that forbids recruitment of health professionals from developing countries, unless the Department of Health in the sending country has specifically agreed to allow such recruitment (Department of Health, 2001). Recently, this has been expanded to prevent any hospital from recruiting nurses and physicians from developing countries (Nullis-Kapp, 2005). Nevertheless, pressure to ensure an adequate supply of physicians, especially in underserved areas, has led other developed countries to promote the active recruitment of foreign physicians. In the US, for instance, Congress recently approved bills extending a J-1 visa waiver program facilitating the placement of foreign physicians in underserved communities by 2 years (Croasdale, 2004).

The difficulty with regard to structuring policy related to physician migration in both developing and developed countries is that there is no clear understanding of the extent of the phenomenon, the reasons why physicians migrate, the benefits and burdens associated with physician migration, and the effect of policies aimed at dealing with the situation. Most systematic studies and in-depth analyses related to physician migration were conducted before 1980 (Barnett, 1988; Dublin, 1972; Horn, 1977; Mejia, Pizurki, & Royston, 1979; Oslak & Caputo, 1973; Portes & Ross, 1976). Recent articles addressing this issue are almost exclusively editorials or viewpoints that base their conclusions on a scattered array of unconnected data, anecdotal evidence, or basic intuitions (Bateman, 2001; Bundred & Levitt, 2000; Hilary, 2002; Laurence, 2003; Pang, Lansang, & Haines, 2002; Patel, 2003; Stein, 2002). This

is largely due to the limitations of current data sources, especially in sending countries, which tend to be poorer and have less reliable information on physician inflow and outflow (Stilwell et al., 2003). Until more systematic studies are conducted, discussions will continue to reflect ideology rather than evidence.

On a more positive note, there have been efforts of late to conduct more rigorous studies of physician migration and its consequences for sending and recipient countries. Recently, the World Medical Association created a committee to examine implications of physician recruitment from developing countries, and it is expected that the 2005 World Health Assembly will follow up the 2004 resolution by beginning to develop a code of practice (Nullis-Kapp, 2005). In the last few years, WHO has sponsored the creation of an online journal, *Human Resources for Health*, which has begun to publish articles that are helping to fill in the empirical and conceptual void surrounding this important issue.

This study complements the efforts of WHO in striving to broaden the base of systematically collected data on physician migration. It focuses on five countries: India, Pakistan, Nigeria, the Philippines, and Colombia, selected both for the high quantity of physicians they send to the US and elsewhere, as well as for their geographic diversity. Of the roughly 210,952 international medical graduates employed as physicians in the US, 19.5% were trained in India, by far the largest sender of physicians to the US. 19,449 Filipino-trained physicians currently work in the US, making the Philippines the second largest source of US foreign-trained physicians (American Medical Association). Roughly 40% of all sub-Saharan African physicians employed in the US were trained in Nigeria (Hagopian, Thompson, Fordyce, Johnson, & Hart, 2004). According to a database kept by the National Residency Matching Program (NRMP) of incoming residents in 2002, India, Pakistan and the Philippines exported the highest number of medical graduates to the US that year. Colombia was the largest sender from South America, and Nigeria sent more medical graduates to the US for residency than any other African country (NRMP, 2002).

Methods

We designed a questionnaire survey consisting of four parts dealing with: (1) the reasons why physicians choose to migrate abroad; (2) the characteristics of medical education that influence physician migration; (3) the impact of physician migration on the respondents' respective countries; and (4) policy options for dealing with physician migration. In the first section, respondents rated a series of potential motivating factors for physician migration on a five-point scale

with answers ranging from '1' (extremely significant) to '5' (no significance). In the final three sections, respondents were presented with a series of statements pertaining to the topics in question. They indicated their level of agreement with the statements on a five-point scale with answers ranging from '1' (strongly agree) to '5' (strongly disagree). When reporting our results, we group ratings of '1' and '2' as 'high significance' or 'agree', ratings of '3' as 'middle significance' or 'neither agree nor disagree', and ratings of '4' and '5' as 'low significance' or 'disagree'.

Respondents in each country included in the study were selectively chosen from five different groups: (1) professors or health professionals working in a university or medical school setting (34.2% of the total number of respondents who filled out a questionnaire); (2) officials and researchers working for national and international governmental and development organizations that conduct health policy or human resource work (14.3% of respondents)—examples of these organizations include ministries of health, the World Health Organization, and the World Bank; (3) representatives of private organizations and national and international NGOs that focus on migration, health, human resources, and development issues (12.3% of respondents); (4) physicians of different specialties working in office-based or hospital-based practices in a diversity of settings, including public and private institutions and rural and urban locations (33.4% of respondents); and (5) experts in related fields such as population studies and development economics (5% of respondents).

The questionnaire was pre-tested in the Philippines and revised for clarity. In India, Pakistan, the Philip-

pinas, and Nigeria, the questionnaire was administered in English. In Colombia, it was administered in Spanish. The questionnaire was translated by a professional translator native to Colombia and then reviewed by a Colombian health researcher to ensure that the questions were accurately translated. Responses were entered into a database and analyzed using EPI Info. Chi-square was used as a test of statistical significance when responses were compared across countries.

Questionnaires were distributed and collected by collaborators working in the countries included in the study. Phone calls or personal visits were conducted on two separate occasions over the course of 3 months as follow-up for those who had not yet completed the questionnaire. A total of 925 questionnaires were distributed. Six hundred and forty-four questionnaires were returned for a response rate of 70% (India (65%) (115/177), Colombia (70%) (150/214), Pakistan (60%) (134/223), Philippines (72%) (112/156), and Nigeria (86%) (133/155)).

Results

The first part of the survey dealt with the factors that motivate physicians to migrate abroad. 90.8% of respondents rated a desire for higher income or more buying power as a highly significant motivating factor for migration (Table 1). Other motivating factors that were perceived to be highly significant included a desire for increased access to enhanced technology, equipment and health facilities (74.1%), a desire for better prospects for one's children (78.0%), a desire to live in a country with increased economic stability (72.5%), a

Table 1
Reasons for physician migration ($n = 644$)

Item	High significance (%)	Medium significance (%)	Low significance (%)	No response (%)
Desire for a higher income/more buying power	90.8	7.0	2.2	
Desire for a higher income relative to the incomes of other professionals	58.4	24.7	16.6	0.3
Desire for increased access to enhanced technology, equipment and health facilities for medical practice	74.1	18.3	7.6	
Desire to travel to a country with a higher number of medical jobs available	50.2	29.2	20.5	0.2
Desire to work in an academic environment with more colleagues in one's field of interest	48.3	27.6	24.1	
Desire for increased prestige associated with being a physician abroad	40.5	29.5	30.0	
Desire to live in a country with a higher level of general safety	51.9	22.7	25.5	
Desire to live in a country with increased economic stability	72.5	15.8	11.5	0.2
Desire for better prospect for one's children	78.0	14.0	7.8	0.3

desire to live in a country with a higher level of general safety (51.9%), and a desire for higher income relative to other professions (58.4%). A significant percentage of respondents also rated a desire to work in an academic environment with more colleagues in one's field of interest (48.3%) as an important motivating factor.

Regarding the influence of medical education, in response to questions in the second part of the questionnaire, most respondents agreed that medical education provides students with highly specialized skills that they can utilize to a greater extent in other countries (55.6% agree vs. 17.5% disagree) (Table 2). This trend was most pronounced in Nigeria (62.4% agree) and the Philippines (62.5%; $p < 0.01$ between countries), though a higher number of respondents from all countries agreed than disagreed with this claim. Nevertheless, respondents in all countries generally disagreed with the claims that reducing the length of medical education (76.4%) or shortening the length of residency programs (74.8%) would reduce the number of physicians who seek work abroad.

With respect to the impact of physician migration, a slight majority of respondents from Pakistan (50.7%), Nigeria (54.1%), and the Philippines (55.4%) agreed that physician migration has led to an insufficient level of medical expertise necessary to build up the health care infrastructure. More respondents in India, however, disagreed than agreed with this statement (29.6% agree vs. 40.9% disagree). A higher number of respondents from Pakistan, Nigeria, and the Philippines also agreed than disagreed with the claim that physician migration has led to an insufficient number of physicians to meet the health care needs of their population. But once again, more respondents from India disagreed (42.6%) than agreed (27.8%) with this statement. Colombian responses were a clear outlier to the overall trend in responses. Just 4% of Colombian respondents agreed that medical migration has led to insufficient medical

expertise necessary to build up the health care infrastructure. These differences in responses between countries were statistically significant ($p < 0.001$). Moreover, only 4.7% of Colombian respondents agreed with the claim that medical migration has led to an insufficient number of physicians to meet the health care needs of the population. This reflects the view by a vast majority of respondents from Colombia that the country produces too many physicians. However, it is worth noting that many respondents qualified their answers by saying that Colombia produces too many physicians in general, but they are largely concentrated in urban areas.

Regarding the positive effects of physician migration, more respondents agreed with the claim that physician migration has led to improvements in medical knowledge/education (48.3% agree vs. 26.6% disagree) (Table 3). However, a higher number of respondents disagreed than agreed that physician migration has reduced unemployment resulting from an oversupply of physicians (16.3% agree vs. 63.7% disagree) and has led to a significant amount of remittances from physicians who emigrate (27.2% agree vs. 35.4% disagree).

When questioned about the impact of physician migration on particular areas of their countries, respondents generally believed that the effects are worse in rural areas (61.5% adverse vs. 5.0% beneficial) than in urban areas (33.4% adverse vs. 14.4% beneficial). In addition, responses indicated a more detrimental impact on the public sector (55.7% adverse vs. 8.8% beneficial) than the private sector (22.2% adverse vs. 22.2% beneficial).

When asked questions about policy recommendations in the fourth and final part of the questionnaire, 83.5% of respondents believed that increasing the income of physicians would be an effective way to reduce medical migration, and 57.6% believed that doing so is feasible given the amount of resources present in their countries

Table 2
Characteristics of medical education that influence physician migration ($n = 644$)

Item	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	No response (%)
Medical education provides students with highly specialized skills that they can utilize to a greater extent in other countries	55.6	26.7	17.5	0.2
Shortening the length of medical education would reduce the number of physicians who seek work abroad	8.9	14.8	76.4	
Shortening the length of residency programs would reduce the number of physicians who seek work abroad	8.2	16.9	74.8	
Medical school is very expensive, and medical graduates are often forced to recoup their expenses by working abroad	30.3	24.5	45.2	
Medical schools judge their success, in part, by how many of their graduates are accepted at foreign residency programs	28.7	26.2	44.9	0.2

Table 3
Impact of physician migration on sending countries ($n = 644$)

Item	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	No response (%)
It has led to insufficient medical expertise necessary to build up the health care infrastructure	37.6	24.4	37.7	0.3
It has led to an insufficient number of physicians to meet the health care needs of the population	38.0	21.4	40.4	0.2
It has reduced unemployment resulting from an oversupply of physicians	16.3	19.7	63.7	0.3
It has led to a significant amount of money sent back to your country from physicians who have emigrated	27.2	37.3	35.4	0.2
It has led to an increase in the number of medical schools during the past two decades	44.4	21.7	33.5	0.3
It has led to increased commercialization of medical schools during the past two decades	48.9	21.1	29.7	0.3
It has led to beneficial international collaboration in health care research and development	37.7	31.4	30.7	0.2
It has led to improvements in medical knowledge/education	48.3	24.8	26.6	0.3

(Table 4). Eighty-seven percent of respondents believed that improving physicians' working conditions may also deter medical migration, and 66.1% of respondents believed that this is feasible. For this question, the responses varied significantly with professional background of the respondents, with 79.2% of those working for national and international governmental and development organizations agreeing to this statement, and as many as 97.3% of experts in non-medical fields agreeing ($p < 0.001$). With regard to compensation, a greater number of respondents agreed (46.9%) than disagreed (37.0%) that there should be a requirement for recipient countries to compensate sending countries for physicians who emigrate. There were similar responses to the question about whether there should be an international agreement that requires all developed countries to compensate developing countries for the medical graduates who decide to migrate to developed countries (54.8% agree vs. 27.6% disagree). While there was agreement across professional groups regarding whether there should be an international agreement requiring compensation by recipient countries, there were variations based on the backgrounds of the respondents. Only 32.1% of clinicians agreed with this statement, but 55.5% of those working for government organizations agreed, while other professional groups gave intermediate responses. There was also general agreement (60.7% agree vs. 22.8% disagree) that there should be a requirement for medical graduates to work in their home countries for a set amount of time after graduation. For this question, too, there were differences based on background, with only 47.8% of the clinicians agreeing, but 69.3% of government employees agreeing

($p < 0.001$). When asked how long physicians should be required to work in their home countries, respondents generally suggested a duration of 1–5 years, with a mode of 5 years.

A majority of respondents strongly disagreed with the suggestion that training fewer physicians and more health care professionals with less expertise would be an effective way to reduce the migration of health professions (62.9%). There was general agreement, however, among respondents that increased formal collaboration between medical schools of sending and recipient countries with explicit conditions of return would reduce medical migration (66.9%). Lastly, a majority of respondents believed that there should be increased collaboration between health ministries of sending and recipient countries to monitor and control the flow of physicians across borders (59.2%).

There were few variations based on demographic characteristics of the respondents, including gender, country and professional backgrounds. The differences in responses based on the country of the respondents have been noted above, and in most cases reflect country-specific characteristics. The most important differences in responses based on professional backgrounds were the variations in responses regarding whether there should be a compulsory service requirement after graduation, with clinicians being more skeptical of this policy. In addition, those responsible for setting policy with regard to human resources for health in their respective countries were more in favor of requirements for medical graduates to work in their home countries after graduation than those who were not (73.9% vs. 60.6%) ($p < 0.001$).

Table 4
Policy recommendations ($n = 644$)

Item	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	No response (%)
Increasing physician income would be an effective way to reduce physician migration	83.5	10.9	5.3	0.3
Increasing income is feasible, given the amount of resources present in your country	57.6	18.6	23.1	0.6
Improving physician-working conditions would be an effective way to reduce physician migration	87.0	8.9	4.0	0.2
Improving working conditions is feasible, given the amount of resources present in your country	66.1	18.2	15.5	0.2
There should be direct regulation of physician migration through migration control	28.3	20.8	50.9	
There should be a requirement for physicians to compensate your country if they gain employment abroad	39.1	16.8	43.9	0.2
There should be a requirement for recipient countries to compensate your country for the medical graduates that emigrate	46.9	16.1	37.0	
There should be a requirement for medical graduates to work in your country for a set amount of time after graduation	60.7	16.3	22.8	0.2
Compulsory service is likely to decrease medical migration in the long run	25.5	33.1	41.0	0.5
Training fewer physicians and more health care professionals with less expertise (i.e. nurses paramedics) would be an effective way to reduce the migration of health professionals	22.2	14.6	62.9	0.3
There should be an international agreement that requires all developed countries to compensate developing countries for the medical graduates who decide to migrate to developed countries	54.8	17.4	27.6	0.2
An international law or code that sets standards for the ethical recruitment of foreign physicians could reduce physician migration	46.9	28.0	24.8	0.3
Increased formal collaboration between medical schools of sending and recipient countries with explicit conditions of return could reduce the permanent migration of physicians	66.9	18.0	14.9	0.2
There should be increased collaboration between health ministries of sending and recipient countries to monitor and control the flow of physicians across borders	59.2	21.7	18.8	0.3

Discussion

The findings of this study highlight the complexities involved in dealing with the issue of physician migration. The key motivating factors show that the roots of physician migration are deep and difficult to alter. While it is difficult to have truly comparable data of physician incomes and the buying power of such incomes in different countries, it is clear that the substantial differences in real incomes will continue to be a motivating factor. For instance, an average physician in the US earns close to \$200,000 annually, while a senior physician in the Philippines cannot expect to earn more than around \$40,000, the pay of a US resident. In

the long run, changes in the level of physician migration will relate broadly to economic development and social transformations that make living in some countries more or less appealing than others. Simply adjusting policies related to migration is unlikely to alter drastically the quantity of physicians who migrate abroad.

The fact that physician migration is unlikely to abate in the near future is unfortunate in light of respondents' beliefs about the impact of such migration. The only benefit that respondents believed physician migration to have was an improvement in medical knowledge and education. More direct benefits in the form of remittances and a reduction in unemployment were not believed by respondents to be significant. It is note-

worthy, however, that only a slight majority of respondents in three of the five countries included in our study believed that physician migration has led to a dearth of physicians available to meet the health care needs of their respective countries' populations and to build up the health care infrastructure in their respective countries. Nevertheless, there was widespread agreement among respondents that physician migration has had a particularly detrimental effect on rural areas and public practice settings. So, while it may not lead to an overall shortage of physicians, responses indicate that it does lead to a shortage in these contexts. Consequently, efforts to provide incentives to physicians to work in rural and public settings are necessary. South Africa, for example, has improved pay and security to physicians working in the public health sector and has required physicians to serve in rural areas for a year following graduation from medical school (Forcier, Simoens, & Giuffrida, 2004).

Another possible adverse effect of medical migration not addressed by this survey is that such migration may lead to the exodus of the highest quality physicians. A study conducted in Colombia shows that physicians who emigrate to practice in the US tend to have better grades than those who choose to remain in the country (Rosselli, Otero, & Maza, 2001). Thus, while the adverse effects of physician migration may, to an extent, relate to shortages resulting from the sheer quantity of physicians who migrate abroad from certain countries, they probably relate more to distributional inequalities resulting from an exodus of physicians from poor, rural areas and to externalities associated with the loss of the best and brightest physicians.

Maintaining the best and brightest physicians is a serious challenge for developing countries. A high level of social prestige has come to be associated with training and practice abroad, and this is quite difficult to change. This is reflected by the fact that nearly a third of all respondents agreed that medical schools judge their success, in part, by how many of their graduates are accepted at foreign residency programs. Until medical schools and instructors cease to foment training and practice abroad, it is unlikely that this will change. Much effort is needed to reorient the medical curricula in developing countries to better address the needs of the populations in those countries and to reward physicians, both economically and socially (through awards, honors, and other such acclamations), who choose to devote their lives to treating the underserved in their own countries.

Aside from the effects of physician migration on the health care systems in many developing countries, it is morally problematic that poor countries invest their scarce economic resources in the education of physicians who later emigrate to wealthier countries. To take an example of just how financially detrimental the flight of

medical personnel can be, South Africa lost an estimated 67.8 billion Rand in human capital investment in the health sector in 1997 alone (Chanda, 2002). That may be the reason why policies that, in one way or another, compensate sending countries find some favor among our respondents. However, policies that attempt to enforce such compensation have largely been unsuccessful (Forcier et al., 2004). This is partly because it is difficult to assess the overall economic loss suffered by sending countries who lose physicians to migration, and partly because it is difficult to enforce compensation across borders. More cooperation is needed between sending and recipient countries to make different compensation schemes effective. But even if compensation is made effective, it is difficult to guarantee that the funds received through compensation will get to those who need them most. More concrete agreements are needed between the governments of host and recipient countries that specify the manner in which the funds received through compensation for migrant physicians will be directed to underserved rural and public settings, which are hurt most by the exodus of physicians.

The only policy recommendations that were clearly favored by respondents were income adjustment and improved working conditions. In support of the general view of respondents, countries such as Thailand and Ireland have had some success persuading physicians who have migrated abroad to return home by providing generous research funding and monetary incentives, as well as services and assistance (Pang et al., 2002). With that said, evidence suggests that adjusting income alone is unlikely to alter significantly the extent of migration, given the enormous wage differentials that currently exist between most sending and recipient countries (Vujcic, Zurn, Diallo, Adams, & Dal Poz, 2004). Thus, being responsive to the concerns of physicians regarding their working conditions and directing resources toward the improvement of the environments in which physicians work may be a more effective use of limited funds. But the burden for improving physicians' working conditions cannot rest solely on the governments of developing countries. International funding agencies also have a key role to play in contributing to the improvement of the workplace environment for physicians in developing countries, especially in underserved areas.

With respect to medical education, respondents generally viewed proposals for educational and training reform as ineffective with regard to reducing the level of physician migration. This may reflect the belief of respondents that universal standards for medical training have become accepted and are unlikely to change, even if current training provides physicians with highly specialized skills that they can utilize to a greater extent in wealthier countries. The best way to ensure that physician migration benefits both sending and recipient

countries may be to increase the number of organized programs that allow foreign students to reap the benefits of medical training abroad with an understanding that they are to use such training to benefit their home countries. While this will not resolve all the potential adversities and controversies associated with physician migration, it may help to make the process more rational and controlled.

The major conclusions reached by this study should be seen in light of some of the limitations posed by our study methodology. Our sample consists of just five countries, which are not necessarily representative of developing countries as a whole, although they all represent major exporters of physicians to developed countries. In addition, some respondents had more knowledge and experience than others, but each response was counted equally. Since there was no way to separate out the more-informed from the less-informed opinions, it is difficult to determine which responses are relatively more informed and which are relatively less informed. Thus, it would be simplistic to think that the responses given to this questionnaire are in perfect correlation with the actual facts and correct policy recommendations regarding physician migration.

Though our questionnaire results are no substitute for systematically collected data, they do provide a rough picture of how individuals with knowledge and experience related to physician migration in developing countries tend to think about this issue and the various proposals that have been made for dealing with it. Moreover, our questionnaire highlights that future data pertaining to this issue should not simply relate to the number of physicians who migrate, but also to the characteristics of such physicians and the distributional effects that migration has within countries. The need for such data is especially important today, as international and regional trade agreements may increase the level of physician migration by lowering current restrictions or barriers to migration (Chanda, 2002).

Acknowledgments

We would like to thank two anonymous reviewers for helpful comments on an earlier draft of the paper. The paper has also benefited from discussions with members of the EU-funded Bioethical Implications of Globalizations (BIG) project, coordinated by Prof. Emilio Mordini, Rome, Italy.

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