

Global Nurse Migration: Its Impact on Developing Countries and Prospects for the Future

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Abstract:

The worldwide shortage of nurses which results from a global undersupply and high attrition rates affects developed countries in the West the same way as it affects developing countries in Asia, Africa and Latin America. The difference lies in the fact that developing countries serve as a readily available source of trained nurses for developed countries in Europe, North America and parts of Oceania. Strong “pull” and “push” factors favour wealthier nations in the West in their efforts to deal with domestic shortages through overseas recruitment. Thus, the ongoing nursing shortage in developing countries is worsened by a loss of thousands of trained nurses every year to emigration. This paper brings into focus the magnitude of the problem in terms of the number of nurses migrating to and from various countries and its impact on developing countries. The paper also examines some of the ongoing efforts in developing countries to mitigate the problem and sheds light on the prospects for improvement in the foreseeable future.

Introduction

The movement of nurses occurs within countries from rural areas to urban centres, within regions from one country to another, and internationally across continents. Starting in the second half of the 20th century, the movement of health workers from the developing countries of Asia and Africa

to the Western industrialized nations was largely for the purpose of training and subsequent repatriation (Lorenzo et al. 2007; Brush and Sochalski 2007; Mejia 1979). In more recent years, however, the intent and expectations on both sides of the geographic and economic divide have changed (Lorenzo et al. 2007; Ball 2004; Corcega et al. 2000). The social, political and economic conditions in many developing countries have not made steady progress and in some cases have deteriorated. Consequently, career opportunities with prospects of permanent settlement in developed countries of the West have become very attractive for nurses from developing countries (Brush and Sochalski 2007; Buchan 2003; Buchan et al. 2003; Buchan et al. 2006; Joint Learning Initiative [JLI] 2004).

Mainly, the developed countries in Europe and North America have benefited from the international migration of nurses, whereas developing countries have sustained a loss of investment in human capital (Khadria 2007; Denton 2006; Liese et al. 2003). In countries plagued by insufficient resources, unsatisfactory working conditions, geographic maldistribution of personnel and bureaucratic inefficiencies of public sector employment, emigration of nurses contributes to the chronic problem of a nursing deficit (Lorenzo et al. 2007; Brush and Sochalski 2007; Oulton 1998; Oulton 2006). For example, there is a shortfall of 600,000 nurses in Sub-Saharan Africa alone (Denton 2006). In Malawi, the nursing shortage has reached such critical levels that in 2003 fifty percent of available nursing posts remained unfilled (Liese et al. 2003) and in 2004 nearly two-thirds of the nursing positions in the public health sector remained vacant. More nurses left Malawi in the preceding four years than the 336 remaining in the public health sector in a country of 11.6 million people (Dugger 2004). The same report added that Lilongwe hospital with 830 beds in 2004 had only 183 nurses left to carry out the work of 532.

A large body of literature on various aspects of the international migration of nurses has appeared in the last 10–15 years. Previous studies have either focused on specific source countries such as India (Khadria 2007; Edward 2005), the Philippines (Ball 2004; Lorenzo et al. 2005 and 2007, Brush and Sochalski 2007), sub-Saharan Africa (Clemens and Pettersson 2008; Dovlo 2007; Liese et al. 2003; WHO 2004a; Padarath et al. 2003) and the Caribbean region (Salmon et al. 2007; Yan 2006), or destination countries including the US (Aiken 2007; Cooper and Aiken 2006), Canada (Little 2007; Mitchell 2003) and the UK (Buchan et al. 2006; Buchan and Seccombe 2006; Buchan et al. 2005; Buchan 2003). Some studies have examined the international patterns of nurse migration (Kingma 2006, 2007; Denton 2006; Aiken et al. 2004), while others have questioned the wisdom and ethics of overseas recruitment of nurses by countries such as the UK and the US (Mills et al. 2008; Gostin 2008; Little 2007, McElmurry et al. 2006, Denton 2006, Jeans et al. 2005; International Council of Nurses 2001). A number of researchers have commented on the impact of nurse migration on developing countries in general or have reported about the challenges posed by the current situation for specific source countries such as the Philippines and India. However, there are no studies that examine the impact of nurse migration on developing countries in a comprehensive manner. This paper looks at the impact of global nurse migration on developing countries and examine the prospects for addressing the problem in the foreseeable future through existing strategies in both developed and developing countries. It must be pointed out at the outset that there are notable discrepancies in data reported from various sources in terms of shortfalls, nursing stocks and numbers migrating from one country to another. However, these discrepancies do not materially change the overall picture or the conclusions drawn with respect to the impact of global nurse migration.

Demand in the Destination Countries

The US

Table 1 shows the estimated number of nurses in selected destination and source countries. The total number of registered nurses in the US in 2000 was estimated by the World Health Organization to be in the range of 2.7 million (Table 1). The US Health Resources and Services Administration (HRSA 2004a) reported the number of registered nurses in 2004 to be nearly 2.9 million. More importantly, the impact of the US nursing workforce labour market on global migration of nurses is very signifi-

cant because the US nursing workforce constitutes approximately 20% of the total world stock of nurses and about half of English-speaking nurses in the world (Aiken 2007; Dugger 2006).

Previous estimates of nurse shortage in the US by 2020 had placed the number at 800,000 (HRSA 2004a, 2004b). More recent estimates suggest that the US will experience a shortage of 75,000 nurses in 2010 and 340,000 by 2020 (Auerbach et al. 2007; HRSA 2004c). Since 1998, the number of newly registered foreign-trained nurses in the US has increased every year. In 1998, approximately 4000 foreign-trained nurses were registered whereas the number had risen to 15000 by 2004. According to some estimates, nearly 10% of US nursing workforce consists of foreign-trained nurses and almost 80% of those have come from developing countries (Cooper and Aiken 2006). Historically, the Philippines and the Caribbean region have been the biggest sources of foreign-trained nurses in the US (Aiken 2007; Ball 2004; Brush and Sochalski 2007; Cooper and Aiken 2006). More recently, India has become a major source. In the 1990s India ranked sixth in terms of the number of nurses applying for licensure and registration in the US, but by 2004 it ranked second after the Philippines (Aiken 2007; Khadria 2007).

Table 1. Number of nurses in selected destination and source countries.

Year	Country	Total Nurses	Nurses per 1000 Population
2000	USA	2,669,603	9.37
1997	UK	704,332	12.12
2003	Canada	309,576	9.95
2004	Saudi Arabia	74,414	2.97
2002	Kenya	37,113	1.18
2004	South Africa	184,459	4.08
2001	China	1,358,000	1.05
2004	India	865,135	0.80
2000	Philippines	127,595	1.69
2004	Malawi	7264	0.59

Source: WHO – World Health Statistics 2007 (WHO 2007).

The UK

In the UK, more than 90,000 foreign-trained nurses have registered since 1997 and approximately 42,000 are currently working in the country (Buchan et al. 2003; Buchan et al. 2005). From 2002 to 2006, approximately 40% of newly registered nurses in the UK were internationally trained, with 16,000 from developing countries (Denton 2006). In 2005 the Nursing and Midwifery Council (NMC) of the UK estimated that 37,000 foreign-trained nurses in the UK could not start work because of the unavailability of “supervised practice placement” opportunities (Buchan et al. 2005). The Philippines, Australia, India and South African have been the main source countries in recent years (Buchan 2003; Buchan et al. 2005; Buchan and Seccombe 2006). For example, of the 16,000 foreign-trained nurses registered in 2004, 7235 came from the Philippines, and in 2001, more than 20% of foreign-trained nurses in the UK were from sub-Saharan Africa (Simoens et al. 2005). In 2002, one of the National Health Service (NHS) trusts in London employed nurses from 68 different countries, including 22 African countries (Buchan 2003).

Canada

In Canada, more than 240,000 nurses were in active service in 2003 (Little 2007). The year before, the Canadian Nurses Association (CNA) had projected nursing shortages to reach 78,000 in 2011 and 113,000 by 2016 (CNA 2002). According to Industry Canada (IC) estimates, (IC 1999), more than 27,000 Canadian nurses had migrated to the US in the 1990s, with more than 25% of 3000 graduates leaving in 1995 and 825 nurses leaving in 1996 (Zhao et al. 2000). According to another

estimate, 22% of RN licensure applicants in the US between 1997 and 2000 were trained in Canada (Buchan et al. 2003). On the other hand, the number of foreign-trained nurses applying to take the registration examination in Canada increased from 1200 in 1999 to 5000 in 2002 (Keatings 2006). More than 17,000 foreign-trained nurses applied to write the Canadian Registered Nurse Examination (CRNE) between 1999 and 2003 (Jeans et al 2005). The number of foreign-trained nurses who took the examination for the first time increased from 548 in 1998 to almost 2200 in 2003 (Little 2007). Most of the foreign-trained nurses taking the registration examination in recent years have been from the Philippines and India (Little 2007).

Saudi Arabia

Between 1992 and 2006, Saudi Arabia was the single largest employer of Filipino nurses, with 64,479 newly hired nurses deployed to Saudi Arabia during these years (Philippine Overseas Employment Administration 2006). Dependent almost entirely on foreign nurses, the Saudi health system has had a very diverse workforce, with nurses from 40 different countries working at one hospital in Saudi Arabia in 1998 and 35,000 foreign nurses working in the country in 1994 (Luna 1998). In the same year, only 13% of the nursing workforce comprised Saudi nationals (Al-Osimy 1994 cited in Luna 1998 and Tumulty 2001), whereas in 1996, of a total of 57,110 nurses in the country, 89% were from elsewhere (Tumulty 2001). The 2000-2001 annual report of the Ministry of Health in Saudi Arabia reported that, altogether, 70,000 nurses were employed in the country at the time and 80% of them had been recruited from other countries. Driven by the desire to reduce dependence on foreign workers and "Saudization" in every sector of the economy, a number of private and public nursing schools have been established in recent years. However, given the explosive population growth and the small number of nurses graduating locally every year, Saudi Arabia will continue to rely on large numbers of foreign-trained nurses to provide health care in the country.

Numbers Leaving Developing Countries

Accurate data from developing countries regarding the number of nurses graduating, retiring or leaving are not available. In a recent paper, Clemens and Pettersson (2008) discussed the challenges in collecting data from developing countries and discrepancies in the numbers reported in various studies. They have demonstrated that due to the differences in the classification and characterization of individuals, previously reported numbers of African-born doctors and nurses working in nine recipient countries are seriously flawed and suffer from gross underestimation. Dovlo (2007) and Galvez Tan (2006) have also pointed out significant inaccuracies in compiling data from various sources on the training, availability and migration of nurses in sub-Saharan Africa and the Philippines. A host of factors including lack of uniformity in the initial and subsequent registration at home and recertification requirements abroad contribute to these difficulties (Clemens and Pettersson 2008).

The Philippines

Attracted by the large sums of money sent home by Filipino workers and the impact of these remittances on the local economy, for years, the government has actively pursued a policy of exporting nurses to other countries. Consequently, the Philippines became and continues to remain the largest exporter of nurses in the world (Ball 2004; Brush and Sochalski 2007; Lorenzo et al. 2007; Galvez Tan 2006). Also, because of the organized and coordinated efforts of the government to export nurses and other workers overseas, good quality data are readily available on the number of nurses leaving the country every year. By 2000, more than 250,000 Filipino nurses were scattered throughout the world (Ball 2004). Between 1992 and 2006, a total of 119,547 nurses left the Philippines for other countries, with 54% arriving in Saudi Arabia and about 10% going to the US. Of the 193,223 professionally active Filipino nurses in 2003, about 85% were working abroad (Lorenzo et al. 2007; Galvez Tan 2006). Whereas in the past Filipino nurses had mostly worked in the US and Saudi Arabia, in recent years, job opportunities in European countries such as Ireland, the Netherlands and

the UK have also attracted nurses from the Philippines (Lorenzo et al. 2007; Galvez Tan 2006). For several consecutive years, two to three times more Filipino nurses have left the country than have been licensed each year (Adversario 2003; Galvez Tan 2005).

The Caribbean Region

Approximately 300 nurses leave the Caribbean region every year. Between 1998 and 2002, 993 nurses resigned from their posts in seven Caribbean region countries, with a “declared intention to migrate” to the UK, US or Canada (Hewitt 2004 cited in Salmon et al. 2007). Between 2001 and 2003, the Caribbean region produced 1199 newly trained nurses but lost 900 to overseas migration (Salmon et al. 2007). In 2000, the Caribbean countries collectively faced a shortfall of 35%, which increased to 42% in 2003. This shortfall resulted in 3322 vacant positions in 2003 (Salmon et al. 2007; Yan 2006). The combined production capacity of all Caribbean countries in the same year could only fill 36% of these positions. It has been estimated that more than 8% of RNs and 20% of specialist nurses leave Jamaica every year (Lowell et al. 2004).

Africa

More than 29,000 nurses from sub-Saharan Africa are estimated to be working in OECD countries (Table 2). Based on census data from South Africa and eight Western destination countries (Great Britain, USA, Canada, France, Australia, Portugal, Spain and Belgium), Clemens and Pettersson (2008) have shown that approximately 70,000 African-born nurses were working in these countries in 2000. This number constitutes 10% of all African-born nurses in the world. Their data also showed that 81% (n = 807) of Liberian- and 78% (n = 134) of Burundi-born nurses were working overseas, while in the same year only 38 nurses were working in Burundi and 185 in Liberia. Most Liberian nurses working overseas were in the US, whereas most Burundian nurses were in Belgium. Similarly, 66%, 63% and 49% of nurses born in Gambia, Mauritius and Sierra Leone were working overseas. The largest number of African-born nurses working overseas came from Nigeria (12,579), with Algeria (8245), Morocco (5176) and Ghana (4766) also losing thousands of nurses to the nine recipient countries.

A recent study of nursing students in Uganda (Nguyen et al. 2008) found that 70% of participating students anticipated leaving Uganda in the next 5 years, and the vast majority hoped to migrate to the US and the UK. Denton (2006) has reported that Malawi, one of the most resource deficient countries in Africa, has been losing 100 or more nurses to global migration every year. Between 1999 and 2001, 114 (60%) nurses left one hospital in Malawi, whereas 500 nurses, more than twice the number graduating that year, left Ghana in 2000 alone (Buchan and Sochalski 2004). In the same period, Ghana faced a shortfall of 4000 nurses (Buchan and Dovlo 2004; Dovlo 2007). All 48 sub-Saharan African countries combined have only 1.3% of the world's trained health workers (WHO 2004b) and collectively face a shortfall of 600,000 nurses (Denton 2006). Whereas most developed countries have more than eight or nine nurses per 1000 population (Table 1), most sub-Saharan African countries have less than two nurses for the same population (Padarath et al. 2003; WHO 2006). In some of the sub-Saharan African countries, the nurse-to-population ratio is approximately 1:5000 (Dovlo 2007). It is estimated that 600,000 additional nurses would be needed to bring the ratio to the level of other low-income countries (Liese et al. 2003)

India

Khadria (2004, 2007) has reported that approximately 18,000 to 20,000 nurses left India between 2002 and 2004. This exodus compromised the healthcare system's ability to provide healthcare to the degree that in 2004 there were not enough nurses to adequately staff the 915,000 beds in more than 38,000 private and public hospitals. At times, hospitals in India have experienced mass resignations at 24 hours' notice. For example, the Holy Family Hospital in New Delhi on several occasions in the early 1980s experienced the resignation of up to 50 nurses at a time (Edward 2005). Internationally, 2–3 nurses are recommended for each doctor, but the estimated ratio in India in recent years has

been around 1.3 nurses per physician (Khadria 2007). Since this ratio is derived by including an estimated number of 865,135 nurses who hold the General Nursing and Midwifery diploma rather than a Bachelor of Science (BSc) degree, the ratio might be considered an over-estimation.

Table 2. Nurses and midwives from selected sub-Saharan African countries working in OECD countries

Country	At Home	In OECD
Ghana	17,322	2267 (13%)
Kenya	37,113	1213 (3%)
Mauritius	4438	781 (18%)
South Africa	184,459	13,496 (7%)
Zimbabwe	9357	3183 (34%)
Total from all of sub-Saharan Africa combined	616,204	29,597 (5%)

Source: WHO – World Health Report 2006 (WHO 2006).

China

Over the years, public financing and under-investment in nurse education has led to a shortage of nurses in China (Fang 2007). With a total of 1.3 million registered nurses, China's overall nurse-to-population ratio is around 1:1000 (Jiang et al. 2004 cited in Fang 2007). Paradoxically, there are few employment opportunities for nurses in terms of the number of budgeted position at hospitals and other facilities. For example, only 0.4 nurses are budgeted per hospital bed and 0.7 nurses per physician in China (Mao 2004, Jiang et al. 2004 both cited in Fang 2007). The imbalance between the number of trained nurses in the country and the number of budgeted nursing jobs in the system has resulted in an artificial surplus and under-employment of nurses. Consequently, there is a growing interest among nurses to seek employment in countries like Saudi Arabia and Singapore. Recognizing the problem of under-employment, the Chinese government is promoting the export of nurses through intergovernmental agreements. In the last 10–15 years, hundreds of English-speaking Chinese nurses have found employment in these countries every year, with a contractual obligation to return home after 2–3 years. Through private companies that charge between US\$4000 and US\$15,000 to arrange overseas employment, hundreds more have migrated to Australia and the UK in the last 5 years (Fang 2007). Despite considerable interest on the part of commercial recruiters to recruit from China, few nurses can afford the amounts these companies charge to arrange overseas employment.

Latin America

Less information is available on nurse migration from Central and South American countries. Overall, the number of nurses migrating from Latin America to the US, Canada and Europe is smaller than that from the Philippines, India or South Africa. The pattern of migration also is more regional than cross-continental. Data from the Peruvian Association of Nurses indicate (Chavez 2004 cited in Malvarez and Agudelo 2005) that over the years, 15% of Peruvian nurses (5120) have migrated to Italy (57%), the US (36%) and Spain (7%). Countries like Argentina and Brazil have lost a relatively small proportion (2–3%) of their nurses to the US. However, the impact of migration for countries with small stocks of nurses has been staggering. For example, El Salvador and Panama lost 60% and 47% of their relatively small stock of nurses to migration. Similarly, 25 nurses migrated from Paraguay to Europe in 2004 alone (Malvarez and Agudelo 2005). Other reports from various parts of Central and South America suggest that in recent years hundreds of nurses from countries like Paraguay, Honduras, Panama, Ecuador and Nicaragua have migrated to other Latin American countries, the US, Italy, and Spain. The regional migration of nurses in Latin America seems to have

favoured Belize, Chile, Costa Rica and Argentina. For example, in 2004, 87 nurses from Nicaragua migrated to Belize (Malvarez and Agudelo 2005). However, for many “nurses on the move” these countries are only an extended stop before getting to their final destination in Europe or North America. Through intergovernmental agreements and technical support programs, hundreds of Cuban nurses are also working abroad in a number of African and Latin America countries.

Factors Promoting Departure from Developing Countries

The pull and push factors that encourage nurses from developing countries to migrate have been discussed in a number of studies (Dovlo 2007; Denton 2006; Lorenzo et al. 2007; Kline 2003; Padarath et al. 2003; WHO 2004a, 2006). The push factors that encourage nurses to emigrate include low wages, poor working conditions, low job satisfaction and few opportunities for professional growth as well as unstable or hostile socio-political conditions in the home country. Although other factors are also important, the wage differential between source and destination countries is the single most important driver of nurse migration (Lorenzo et al. 2007; WHO 2004a, 2006). For example, in a recent survey 70% of nursing students in Uganda who expected to migrate in the next 5 years indicated that low wages were the primary reason for their desire to leave the country (Nguyen et al. 2008). Data from five African countries showed that better remuneration was the most important factor affecting health professionals’ decision to emigrate. It was cited as an important factor in the decision to migrate by 68% of surveyed health professionals in Cameroon – the lowest in the survey – and by 85% of respondents in Ghana – the highest. Better remuneration was closely followed by “conducive work environment,” “better management of health services” and “continuing education” as other factors affecting the decision to emigrate (WHO 2004b, 2006).

The significance of wage differential between source and destination countries as a determinant of migratory patterns is better appreciated by noting that in terms of purchasing power parity, a Canadian nurse in 2004 made 14 times more than a nurse in Ghana and 25 times more than one in Zambia (Vujicic et al. 2004). The yearly salary of a nurse in the Philippines ranges between \$900 to \$2040 depending upon rural or urban location (Adversario 2003), whereas his or her counterpart in the US or Canada makes about \$48,000 or more (Martin et al. 2004). In the Philippines, the salary of a physician ranges between US\$3600 to US\$9600 per year. In recent years, many physicians have chosen to retrain as nurses in the hope of finding employment overseas because they stand to make 6 to 13 times more by migrating to the US or Canada as a registered nurse than staying in the Philippines as a physician (Santos 2005).

There is some evidence that improvement in non-financial factors such as career development opportunities, transparency in promotions and supportive supervision can have a favourable impact in curbing the intent to migrate (Mathauer and Imhoff 2006; Awases et al. 2004). Nonetheless, the opportunity to make more money remains by far the most powerful motivator in the decision (Vujicic et al. 2004). Considering the wage differential between source and destination countries, the willingness of nurses from the Philippines, India, Africa and the Caribbean region to migrate seems quite understandable. If there is an opportunity to make more money in a foreign land, even for a limited period of time, competing interests in professional growth and quality of life are likely to take a secondary place. For example, female Filipino nurses working in Saudi Arabia or even in the US might sacrifice many personal rights and social freedoms in the interest of better economic rewards (Ball 2004).

Impact on Developing Countries

Accurate assessment of the negative impact of nurse migration on developing countries is nearly impossible for a variety of reasons. To begin with, accurate data regarding training, registration, employment, retirement and migration are not available in most developing countries. Data on cost of training, unemployment, out of pocket expenses for emigration, and occupation-specific annual remittances are also not available. Thus, one can only make indirect estimates in this regard. In so doing, several assumptions would be necessary. For example, one would have to make assump-

tions about the proportion of migrating nurses who would have remained professionally active in the home country had they not migrated. Lorenzo et al. (2005) have reported that after adjustment for death and retirement, only 58% of the 332,206 Filipino nurses who ever registered with the licensing board were employed as nurses within the country or overseas in 2003. Among the 193,223 who were professionally active in 2003, about 85% were working in other countries. There is no information on when and why the remaining 42% left the profession. Some information regarding dissatisfaction rates among nurses and a desire to give up the practice of nursing is available in the West (Ball 2004). In a five-country study including the US, Canada, Germany, Scotland and England, Aiken et al. (2001) found widespread dissatisfaction among nurses with almost one in four planning to leave the profession within the next year. In the UK, one in three newly trained nurses does not even register with the council of nurses at the completion of training (Oulton 2006)

In spite of the poor quality data from developing countries regarding the numbers of in-stock, in-training or migrating nurses, it is clear that developing countries are losing trained and experienced nurses much faster than they are being produced (Lorenzo et al. 2007; Salmon et al 2007; Yan 2006). To make the matters worse, nurses who leave are often the most experienced “cream of the crop” specialty nurses such as ICU, CCU and ER nurses (Lorenzo et al. 2007; Ball 2004; Yan 2006). Research by Awases et al. (2004) has shown that the number of nurses in some African countries declined by 12% between 2001 and 2003. The fact that 40% of internationally educated nurses taking licensing examinations in countries such as Canada are 40 years of age or older (CNA 2002) also supports the claim that more experienced nurses are being recruited from developing countries (Yan 2006; Khadria 2007). Consequently, the pool of senior nurses who serve as educators or administrators is being depleted. (Yan 2006). To further complicate the situation, for the past several years doctors in the Philippines have been retraining as nurses to pursue nursing employment opportunities in the West. By 2003, more than 3000 Filipino doctors had become “nurse medics” (Pascual et al. 2003 cited in Lorenzo et al. 2007; Galvez Tan 2006) while another 4000 were in training to become nurses (Galvez-Tan 2006). A majority of these nurse medics had practised as physicians for 10 or more years and many had specialty training (Lorenzo et al. 2007; Galvez Tan 2007a, 2007b).

Economic Loss

Pittman et al. (2007) have pointed out that nursing education in many developing countries is publicly financed. Therefore, migration of nurses from developing countries translates into a “massive public subsidy” to wealthier nations. The economic loss to South Africa due to the migration of its doctors between 1989 and 1997 was estimated in the range of \$5 billion (Dovlo 2007). The loss to Ghana in tuition costs alone for the 61% of graduates of one medical school who emigrated between 1986 and 1995 has been estimated at around \$5.96 million (Dovlo 2003). Between 2000 and 2003, the total economic loss in the Caribbean region through public investment in the training of nurses who left was in the vicinity of \$30.2 million (Yan 2006). Additional losses caused by the increased burden of work on the remaining nurses and resulting “sick-outs” or other effects amount to \$2.5 million. In 2006, Krigia et al. estimated that the total economic loss over a 32-year period until the retirement age of a 30-year-old Kenyan nurse leaving the country amounted to \$338,868. Currently 1213 Kenyan nurses and midwives, 3.3% of the total stock, work in seven OECD countries alone (Kirigia et al. 2006).

Economic Gain

Remittances by workers abroad and nurses in particular have a major impact on individuals, communities and countries. Direct and indirect benefits of remittances help stabilize the economic and social conditions in recipient communities as well as reduce the burden on publicly funded health services through improved access to food, housing and education (International Center on Nurse Migration [ICNM] 2007). In developing countries like India, the Philippines, Jamaica and Uganda, remittances by workers abroad constitute 2% to 14% of the GDP (International Monetary

Fund [IMF] 2003). It is alleged by some while disputed by others that remittances by nurses to some developing countries are in amounts sufficient to compensate for societal losses associated with the migration of these personnel (Kingma 2007; ICNM 2007).

Remittances to developing countries in the decade prior to 2004 were estimated to have exceeded total global developmental aid (WHO 2004a). The total amount of remittances through recorded channels worldwide in 2005 was in the vicinity of \$232 billion. Unrecorded remittances would add another 50% to the total (United Nations [UN] 2006). The share of worldwide remittances going to developing countries in 2005 was 72%. Occupation-specific information is not available. However, based on Tongan and Samoan nurses in Australia, research by Connell and Brown (2004) indicates that nurses are not only more likely than other workers to remit, but they also remit larger amounts of money and continue to do so at the same rate over an extended period of time. Similarly, Buchan et al. (Buchan et al. 2005, 2006) have reported that 50% of Filipino and South African nurses in the UK regularly send one quarter or more of their income home.

In many of the source countries, there has been a growing dependence on remittances from workers abroad. The amounts of such remittances have grown considerably over the last two decades. For example, remittances of Filipino workers in 2005 exceeded \$10 billion and were expected to reach \$14.7 billion in 2007 – an increase of \$1.9 billion from 2006 (ICNM 2007). In the face of significant under-employment or unemployment of nurses in source countries and the attraction of remittances as a steady source of revenue, there is little incentive to address the problem of “brain drain” (Villalba 2002). In fact, one easy way to deal with the problem of unemployment in countries like the Philippines and China is to facilitate the export of these workers. This seems to be the current strategy in China, where the government is actively involved in exporting nurses and has a direct financial stake in sending them to Saudi Arabia and other countries (Fang 2007). Similarly, some state governments and private hospitals in India are training nurses specifically for the purpose of sending them abroad. Khadria (2007) reported that these hospitals invest between \$4700 and \$7000 in training each of these nurses and make as much as \$47,000 when a nurse is placed overseas by a recruitment agency.

Impact on Health Indicators and Healthcare Delivery

A direct relationship between nurse migration and poor health indicators of a country is hard to establish. Several proxy measures, however, support the claim that reduced access to care and overburdening of the existing workforce are the direct result of the nursing shortage (Kingma 2007). Increased risk of patient mortality in hospital settings due to overburdening of nursing staff has previously been demonstrated (Aiken et al. 2002). Studies have also shown a positive relationship between the availability of health workers and the health status of communities. For example, health-worker density has been directly linked to population health outcomes, which have been shown to improve considerably when health-worker density reaches or exceeds a value of 2.5 per 1000 population (Anand 2004).

Maternal mortality, infant mortality and under-five mortality rates in various countries have been shown to have an inverse relationship with the number of health workers (Dovlo 2007; Sudhir and Barnighausen 2004). Sanders et al. (2003) have reported that life expectancy in 17 of the 48 sub-Saharan African countries declined as a direct result of increased incidence of communicable diseases including AIDS. In other countries, the ability of the system to test for HIV and provide antiretroviral treatment was hampered by nursing shortages (Kober and Van Damme 2004 and 2006). A downward trend in immunization coverage in some Caribbean region countries, where immunization coverage dropped from 90% to 80% in 2003, has also been attributed to nurse migration (Yan 2006). A similar decline in immunization rates has been noted in the Philippines, where immunization rates were down to 60% in 2003 from a high of about 70% in 1993 (Galvez Tan 2006).

Nurse shortages also result in increased workload and high patient-to-nurse ratios (Lorenzo et al. 2007; Yan 2006; Salmon et al. 2007; Oulton 1998). Aiken et al. (2002) have shown a direct

correlation between workload and nursing burnout. In some developing countries, the patient-to-nurse ratio has increase three- to fourfold in the last two decades. High patient-to-nurse ratios in turn contribute to low morale, high stress levels, absenteeism, medical errors, patient dissatisfaction and financial instability for hospitals. These effects trigger a vicious cycle in which more and more nurses want to leave the country (Kingma 2007; Mitchell 2003).

Evidence of the impact of workforce shortage on the infrastructure too is readily available (Kober and Van Damme 2004, and 2006). According to the 2006 World Health Report, many developing countries will not be able to achieve their Millennium Development Goals (MDGs) because of the shortage of healthcare workers (JLI 2004; WHO 2006). Whereas a minimum of 2.5 health workers per 1000 people are required to achieve the health related MDGs, only 6 out of 46 African countries meet that target (WHO 2004a). Reportedly, 200 or more hospitals in the Philippines closed in recent years due to the shortage of health workers, while hundreds more have scaled down their services for the same reason (Lorenzo et al. 2007; Galvez Tan 2007a, 2007b).

The eight MDGs adopted by world leaders under the auspices of the United Nations in September 2000 and slated to be achieved by 2015 include reduction of child mortality by two thirds, reduction of maternal mortality by three quarters, and halting the spread of HIV/AIDS, malaria and tuberculosis. Despite the efforts of many dedicated individuals the world over and the notable gains in some of the 20 targets and 60 indicators, worldwide progress has been slow and uneven (UN 2008).

It is widely accepted that the targeted problems are multifaceted and the achievement of these goals depends on simultaneous progress on multiple fronts, including reducing poverty, eliminating illiteracy, empowering women and achieving gender equality, protection of the environment and the creation of global partnerships (UN 2008). The availability, retention and distribution of adequately trained healthcare workers in appropriate numbers cannot independently eliminate the problems of high child and maternal mortality or the spread of HIV/AIDS, malaria and tuberculosis. However, access to adequate healthcare resources will significantly help in addressing these problems in the developing countries of Asia, Africa and Latin America (Dovlo 2007). The continuing exodus of nurses from developing countries seriously compromises the ability to make meaningful and sustained progress toward achieving the Millennium Development Goals (Kober and Van Damme 2004, and 2006).

Impact on Nursing Education

Nursing education has become a lucrative business in countries like the Philippines and India, where many private schools have emerged in the last 10–15 years (Lorenzo et al. 2007; Khadria 2007). The number of nursing schools in the Philippines increased more than threefold from 140 in 1970 to about 460 in 2005 (Galvez Tan 2007a, 2007b). Corresponding to the increase in the number of nursing schools has been a steady decline in the national licensure examination pass rate, from 85% in the 1970s to 45–54% between 2001 and 2004, with more than 100 schools posting a pass rate below 50% (Brush and Sochalski 2007). The questionable quality of education in schools that do not have adequate facilities or experienced full-time faculty is reflected by the closure in 2005 of 23 schools by the regulatory agencies in the Philippines (Overland 2005)

In many developing countries such as the Philippines, private health services have been growing rapidly, and nurses have increasingly been competing with physicians as direct providers of care (Lorenzo et al. 2007). Despite the increase in the number of nursing schools in the Philippines to 460, with 20,000 graduates every year, the number of nurses produced is still less than the number leaving each year (Brush and Sochalski 2007; Overland 2005; Galvez Tan 2007a). In the Caribbean region, even with increased production it would take 5 or more years for some countries to fill existing vacancies (Yan 2006). Add to that an increasing demand from population growth and aging populations, and it would take even longer to fill the gap between demand and supply. In other developing countries such as those in sub-Saharan Africa, the departure of experienced nurses not only contributes to lower quality of education, but also prevents ministries of health or education

from starting new schools or expanding enrolment in existing schools.

Other Effects

Allegedly, with the growing shortage of nurses in Canada, the UK and the US, recruiters became less selective and began to offer positions to nurses from developing countries without serious consideration for the level of training or experience. This has resulted not only in accelerated migration of nurses from source countries (Yan 2006), but has also caused a great deal of pain and frustration for nurses who subsequently could not meet the licensure and certification requirements. For example, in one case 20 to 25 Korean nurses who had paid \$25,000 each to a private recruiter to come to Canada had to return because they were not eligible to register in Canada (Jeans 2006).

How Developing Countries Are Responding

Developing countries have responded to the shortage and migration of nurses in a variety of ways. Several, including Iran, Oman, Malawi and those in the Caribbean region, have taken steps to create stability and self-sufficiency in the supply of healthcare workers (Little and Buchan 2007; Salmon et al. 2007; Yan 2006). For example, Iran established a Ministry of Health and Medical Education in 1984, which produced an additional 70,000 health workers and 27,000 medical students in the following 15 years (ICNM 2008). In the Philippines, the government has enacted laws to promote and protect the interests of migrants and their families. Several agencies in the country are involved in seeking better overseas employment opportunities for Filipino workers and provide pre-departure seminars to acquaint prospective migrants with the laws and customs of destination countries (Ball 2004; Lorenzo et al. 2007).

Policy debate on a 25-year health workforce development plan in the Philippines has emphasized the need for a rational approach toward the production and utilization of health workers (Lorenzo et al. 2007). In the last quarter century, the Filipino government has focused on expanding the country's production capacity with the intent to export nurses. However, a number of proposals have also been discussed in recent years to deal with the negative effects of nurse migration. These proposals include multilateral investment in nursing education or partnerships with hospitals in destination countries whereby Filipino hospitals are compensated for nurses recruited from them so that they can train replacement nurses. Other proposals include a mandatory service requirement prior to migration for graduates of publicly funded nursing schools, leave-of-absence provisions for nurses from developing countries to return home to help train future nurses, and establishment of returnee-integration programs (Lorenzo et al. 2007; Salmon et al. 2007; Yan 2006; Galvez Tan 2005).

In the Caribbean region, countries are independently or jointly trying creative strategies that include nurse-training partnerships with neighbouring countries or with American healthcare providers (Salmon et al. 2007; Yan 2006). Other efforts promote "temporary migration" arrangements that allow nurses to divide their time between the US and their home country or return home for specific activities such as participating in educational initiatives or volunteering their expertise in specific work settings for specified periods of time. In other cases, joint public- and private-sector for-profit business ventures are being undertaken to develop nursing schools that would attract privately paying students from all over the world. In one program, nurses from the US, the UK and other developed countries are given the opportunity to work in the Caribbean at national pay grades with the attraction of combining professional work with a tourist experience for up to a year (Salmon et al. 2007; Yan 2006).

The retirement age in some Caribbean countries is still age 55 (Yan 2006), contributing to the premature loss of the most experienced segment of the nursing workforce. Some Caribbean region governments are now seriously looking into the possibility of extending the retirement age to 60 or even 65 years. Others are attempting to employ retired nurses under reclassified job categories while allowing them to draw full retirement benefits. A regional initiative involving an array of regional

partners under the title of “Managed Migration Program” has been in the works since 2001 to effectively manage the migration of nurses and to minimize its negative impact on healthcare systems in the region. The program attempts to strike a balance between the individual’s right to choose a workplace of his or her liking and the source country’s obligation to provide adequate healthcare for its citizens (Salmon et al. 2007; Yan 2006).

Guided by the concept originally developed in Jamaica, the Caribbean Managed Migration Program was initiated in 2001 by the Office of Caribbean Program Coordination at the Pan American Health Organization. The list of partners in this initiative includes a number of national, regional and international stakeholders encompassing nursing organizations, governmental agencies and private sector organizations. By including a variety of stakeholders, the program provides a platform for all parties to work collaboratively toward developing strategies and initiatives to optimally manage the migration of nurses while safeguarding the interests of all stakeholders. The degree to which the program succeeds in its mission remains to be seen (Salmon et al. 2007).

In sub-Saharan Africa, some countries have created economic incentives such as a “rural area allowance,” a “scarce skills allowance” and an “additional duty hours allowance.” Health workers including doctors and nurses are eligible to receive these allowances if they work in designated rural areas or have skills that are in short supply (Dovlo 2007). Schemes involving guaranteed housing and transportation loans have been instituted in Ghana, whereas Malawi, Botswana and Mozambique have undertaken initiatives in partnership with international agencies such as the United Nations Children’s Fund (UNICEF) and the WHO to increase the number of nursing schools, faculty, student enrolment and fellowship programs. The Ministry of Health in Malawi, with the help of international agencies, embarked in 2004 on a multidimensional capacity-building 6-year Emergency Human Resource Plan to retain existing health workers and attract back those who had left (ICNM 2008). Tanzania and Uganda have attempted to reduce bureaucratic inefficiencies in the healthcare system and have streamlined the recruitment and promotion processes. Whether any of these incentives have produced results in terms of enhanced production and retention of nurses is not known. In fact, there are assertions that some of these schemes have created greater income disparity between doctors and nurses, with the unintended effect of greater motivation to migrate (Dovlo 2007).

Some destination countries in the West have also begun to take note of the negative impact of nurse migration on developing countries. The UK has taken the lead in adopting measures to reduce this impact by limiting the number of nurses governmental agencies can recruit from selected developing countries or by signing recruitment agreements with other governments and by developing codes of good practices and ethical recruitment policies (Denton 2006; Brush 2007). The UK government has also imposed restrictions or an outright ban on the National Health Service’s recruitment of nurses from a number of developing countries. In Canada, the Ontario Hospital Association has initiated the process for a long-range strategic plan that includes healthcare workforce planning and vision for the future. However, the plan is not focused on addressing the problem of nursing shortages and migration of nurses and is not sufficiently advanced to be implemented in the near term (Keatings 2006).

Outlook for the Future

The conjoint problems of nursing shortages and migration require all countries to adopt a long-range political and economic commitment to increase the production and retention of nurses. Mitchell (2003) has pointed out that despite copious amounts of literature on this subject, not enough is being done in destination and source countries to address the problem. Clearly, multiple factors contribute to the manifest lack of enthusiasm in both source and destination countries in this regard. For developing countries the most important hurdle is the lack of resources to close the wage differential between source and destination countries. Related factors also include political instability and bureaucratic inertia that prevent improvements in working conditions and economic growth (WHO 2004a).

Focusing on the issue of retention, Kingma (2006) makes the case that migration is less the function of pull factors than the result of strong push factors. Thus, the responsibility lies squarely with source countries to independently or in partnership with resource-rich destination countries to mitigate the push factors. She also argues that efforts to artificially curb the flow of nurses through restrictions and regulations, without the necessary steps to enhance retention by mitigating push factors, will not succeed. These observations have two significant implications. One, in the absence of significant improvements in living wages, working conditions and quality of life in developing countries, nurses will continue to leave. Two, regulatory restrictions such as bonding, fines and mandatory service requirements in the absence of meaningful socio-economic changes are neither effective nor justifiable.

Principally, the mitigation of push factors requires developing countries to close the wage differential between source and destination countries. After examining the data on wage differentials, Vujicic et al. (2004) have concluded that the difference in wages is so vast that there is no hope for source countries to entirely close the gap, and small increases in salaries will have practically no effect on the exodus of nurses in the foreseeable future. Therefore, migration of nurses and the resulting decline in source country stocks will continue in the foreseeable future.

As far as increased production is concerned, most developing countries have not invested in developing institutions to train enough nurses to meet their own needs, and most training opportunities are in publicly funded institutions. While some countries in sub-Saharan Africa and the Caribbean have no schools of nursing at all, others have too few. The Philippines and India aside, few if any schools of nursing exist in the private sector. In the absence of adequate resources, the governments in these countries are unable to develop new facilities or expand the operational capabilities of existing institutions. Consequently, it seems unlikely that the production of nurses in most developing countries will be increased in the foreseeable future.

Healthcare workforce policies in the US ultimately affect almost all source or destination countries in the world (Aiken 2007). As noted, the need for nurses in the US is projected to grow in the coming years. Currently, thousands of qualified nursing school applicants are turned away in the US every year because of insufficient enrolment places. In the absence of a policy shift to enhance the production of nurses in the US, continued migration from other countries is the most likely scenario to meet the US needs. Other than the UK, where significant efforts have been underway to increase the enrolment of nursing students (Buchan and Seccombe 2006), increased production to meet the growing needs in other destination countries of the West is also unlikely to happen in the near future.

The outlook for increased nurse retention through other mechanisms is equally grim. Despite some discussions in the Caribbean community to increase the retirement age, reducing the attrition of existing stocks in various countries resulting from retirement and "burn out" is not on the horizon. There is little reason to believe that repatriation encouragement will have more than a modest effect. According to the International Organization for Migration (IOM 2007), repatriation encouragement resulted in the return of about 2000 "highly qualified" individuals to 11 African countries between 1983 and 1999. Considering that 20,000 or more individuals leave Africa every year (WHO 2004a, 2004b), the repatriation of 2000 individuals over a period of 16 years makes up for a very small fraction of the overall loss of human capital for these countries. Consequently, the gap between global demand and supply, with resulting migration, is projected to expand in the coming years (Oulton 2006; Ball 2004).

Conclusions

The global shortage of nurses is the result of economic and environmental forces that affect both source and destination countries in similar ways. In most countries the demand for nurses is on the rise and outpacing production and retention rates. That the nursing shortage has worsened over the years does not bode well for a solution in the near future. Destination countries in the West do not seem to have the political will and long-term commitment to find more enduring solutions

than quick fixes such as lenient immigration policies and overseas recruitment. They are also less inclined to help strengthen the infrastructure in developing countries to mitigate the push factors. In developing countries, the necessary resources and infrastructure currently do not exist to stop the outflow of nurses.

Further, policy makers in many developing countries do not seem to be seriously concerned about the phenomenon of “nurse drain.” To the contrary, there is a desire to compete in the global marketplace for the opportunity to export nurses and other skilled workers to strengthen local economies through remittances. In some developing countries, the private sector has embraced the idea of training nurses for export with great enthusiasm, since everyone involved, including private training hospitals, nurses, local recruitment agencies, foreign recruiters and hospitals abroad, stands to gain from the migration of nurses (Brush and Sochalski 2007; Khadria 2007; Gostin 2008).

A number of reports on the subject have provided sound analysis and sensible policy recommendations (Gostin 2008; Little and Buchan 2007; Stilwell et al. 2004; Denton 2006; Galvez Tan 2005). Most policy recommendations in destination countries focus on expanding enrolment and making a career in nursing more attractive for potential candidates. These recommendations recognize the burgeoning future demand and the need to address high attrition rates in the nursing profession. They also acknowledge the negative impact of nurse migration on developing countries. The proponents of such measures focus on domestic policy initiatives with a belief that increased production and retention of nurses in destination countries like the US or the UK will essentially close the door on migrant nurses from developing countries, thus forcing them to serve in their home countries.

Policy recommendations for developing source countries place greater emphasis on retention, repatriation and regulation. A variety of preliminary steps and interesting initiatives in many developing countries are currently underway (Dovlo 2007, Salmon et al. 2007; Yan 2006; Brush and Sochalski 2007; Lorenzo et al. 2007; Padarath et al. 2003). The short-term success and long-term impact of these efforts remain to be seen. However, in the order of magnitude, these efforts are quite modest in comparison to the size of the problem. Promising options for developing countries involve multilateral and multidimensional solutions that accept the realities of powerful push factors and attempt to find some middle ground. The Managed Migration Program in the Caribbean offers such a prototype.

Bilateral agreements between host and source countries that provide financial compensation to source-country institutions for their losses or allow nurses to periodically return home for work can perpetuate the problem by replacing existing channels of migration with government-sponsored formal channels, without helping with infrastructure development and capacity building. The most desirable direction for the future encompasses innovative multilateral agreements among consortia of countries, designed to address the global nursing shortage through mutually supportive arrangements that acknowledge the responsibilities of host countries, the rights of individuals to migrate and the concerns of source countries.

Through multilateral arrangements, host countries can augment their nursing workforce while supporting infrastructure development and institutional capacity building in the source countries of Asia, Africa and Latin America. In this regard, organizations like the Global Health Workforce Alliance, the Asian Pacific Action Alliance on Human Resources for Health, the African Platform on Human Resources for Health, the European Commission, the Pan American Health Organization Observatory on Human Resources in Health and the United States Agency for International Development (USAID) can play an important role.

Capacity Project, a USAID-funded 5-year initiative established in 2004, though not a multilateral arrangement, serves as an example. The project works in developing countries across sectors to help build, retain and sustain the healthcare workforce through planning, education, training and strengthening of institutions. Led by similar entities, multilateral arrangements with long-term commitment toward capacity building in developing countries can help ameliorate the negative impact of nurse migration.

In conclusion, the migration of nurses to more affluent industrialized societies and the resulting decline in source country stocks is likely to continue in the foreseeable future. Effective mitigation of pull and push factors, with strong political commitment and dogged determination, is not in sight as yet. However, examples of small steps being taken in both host and source countries to address the issue provide a reason for hope.

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