

Report No. 48988-LAC

**THE NURSE LABOR & EDUCATION MARKETS IN THE
ENGLISH-SPEAKING CARICOM: ISSUES AND OPTIONS FOR REFORM**

June 2009

Human Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region



Document of the World Bank

THE NURSE LABOR AND EDUCATION MARKETS IN THE ENGLISH-SPEAKING CARICOM: ISSUES AND OPTIONS FOR REFORM

Human Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region

June 2009

CONTENT

A. EXECUTIVE SUMMARY	1
B. INTRODUCTION	6
C. RESEARCH APPROACHES	8
D. THE CARICOM	11
E. THE ES CARICOM NURSE LABOR MARKET	15
Active Supply of Nurses.....	15
Demand for Nurses.....	16
Inactive Supply of Nurses	18
Intra-regional Dynamics.....	19
Increments and Attrition.....	19
F. INTERACTIONS BETWEEN THE ES CARICOM AND THE GLOBAL NURSE LABOR MARKETS.....	20
Stocks of Caribbean-Trained Nurses in Prime Destination Countries.....	20
Trends of Migratory Outflows.....	20
Factors Determining the Migration Decision	23
Inflows.....	28
G. The ES CARICOM Nurse Education Market	29
Supply	29
Supply-side constraints.....	31
Demand	33
Ongoing and Planned Reforms.....	33
H. A REGIONAL NURSE LABOR MARKET OUTLOOK	35
Future Demand and Supply under Current Policies	35
Future Supply, Demand and Shortages under Alternative Policy Scenarios.....	36
Costs and Financing Solutions for an Expansion and Strengthening of Training Capacity	40
Impact of Full Implementation of CSME on Intra-regional Migration Flows	42
I. CONCLUSIONS AND RECOMMENDATIONS	44
Challenges	44
Entry Points to Stabilize Supply.....	45
Current Efforts.....	46
Policy Options to Reduce Shortages	46
Financing the Strengthening and Scaling-up of Nurse Training	50
Recommendations	51

TABLES

Table 1:	Main Research Activities.....	8
Table 2:	Profiles of CARICOM Countries	12
Table 3:	CSME Modes of Free Movement of Services	13
Table 4:	Employment Status of Nurses in Jamaica.....	19
Table 5:	Residency of Jamaican-trained Nurses for Cohorts of Nurse Student Graduates	22
Table 6:	Class Rank of Nurses, by Non-Migrant and Migrant RNs, RNs Interviewed (1980 and 1990 cohorts).....	23
Table 7:	Rational for Emigration, RNs Interviewed and Ever Lived Abroad.....	25
Table 8:	Satisfaction with Salary, by Country of Residence, RNs Interviewed.....	25
Table 9:	Satisfaction with Salary Before and After Migration, RNs Interviewed	25
Table 10:	Rational for Emigration, RNs Interviewed and Ever Lived Abroad.....	26
Table 11:	Satisfaction with Work Environment and Work and Career Development Opportunities, by Country of Residence, RNs Interviewed	26
Table 12:	Satisfaction with Work Environment and Work and Career Development Opportunities Before and After Migration, RNs Interviewed	27
Table 13:	Reason for not Migrating.....	28
Table 14:	Net Increment Rates in 2006	30
Table 15:	Proportion of Student Paying for Tuition in Jamaica	31
Table 16:	Key Nurse Education Demand-side Indicators.....	33
Table 17:	Examples of Nurse Education Reforms in the ES CARICOM.....	34
Table 18:	Description of Scenarios for Scaling-up Supply.....	36
Table 19:	Willingness to Pay for Nurse Training Education among Jamaica-trained nurses [US\$, 2007] ..	38
Table 20:	Costs and Benefits and to Whom They Would Accrue from One Nurse Being Trained in Jamaica [in US\$ 1,000, 2005].....	42
Table 21:	Principle Policy Options to Manage Migration	48

FIGURES

Figure 1:	Nurse Shortages in Case Study Countries	17
Figure 2:	Nurse per 1,000 population vs. GDP per Capita.....	18
Figure 3:	Flows of ES CARICOM trained Nurses to Prime Destination Countries (2002 – 2006).....	21
Figure 4:	Flow Rates in Relation to GDP	24
Figure 5:	Flow Rates in Relation to Wages.....	24
Figure 6:	US NCLEX Pass Rates by Country of Training in 2000-2005.....	32
Figure 7:	Supply and Demand for Nurses in the ES Speaking CARICOM Under Current Policies.....	35
Figure 8:	Composite Projection of Supply and Demand in the Nurses Labor Market of ES CARICOM Countries in 2007-2025	39
Figure 9:	Projection of Supply and Demand in the Five Case Study Countries for 2015 and 2025	40
Figure 10:	Cost of Improving and Expanding Training Capacities According to Scenario 1 and 2	41
Figure 11:	Hourly Salaries and GDP per Capita across Selected ES CARICOM Countries	43
Figure 12:	Key Education Market Indicators	45

SUPPLEMENT: ANNEXES

Annex A:	Statistical Data
Annex B:	Methodology
Annex C:	ES CARICOM Case Country Studies
Annex D:	OECD Case Country Studies
Annex E:	Jamaican Nurse Labor Survey

REFERENCES

ABBREVIATIONS & ACRONYMS

BAR	Barbados
BEL	Belize
CARICOM	Caribbean Community
CIHI	Canadian Institute for Health Information
CSC	Case study countries
CSME	CARICOM Single Market and Economy
DOM	Dominica
ES	English-speaking
GATS	Global Agreement on Trade in Services
GDF	Global Development Finance
GDP	Gross Domestic Product
GND	Grenada
GY	Guyana
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
IPUMS	Integrated Public Use Microdata Series
JM	Jamaica
MOH	Ministry of Health
NCLEX	Nursing Council Licensure Examination
NCSBN	National Council of State Boards of Nursing
NMC	Nursing & Midwifery Council
OECD	Organization for Economic Cooperation and Development
ONS	Office for National Statistics, the UK
RNCRE	Regional Nursing Council Registration Examination
SL	St. Lucia
SVG	St. Vincent and the Grenadines
TT	Trinidad and Tobago
UK	United Kingdom
US	United States
WDI	World Development Indicators

Vice President:	Pamela Cox
Country Director:	Yvonne Tsikata
Sector Director:	Evangeline Javier
Sector Manager:	Keith Hansen
Country Sector Leader:	David Warren
Task Team Leader:	Christoph Kurowski

ACKNOWLEDGEMENTS

This report has been prepared by a team including Christoph Kurowski (Task Team Leader), Yuki Murakami, Tomoko Ono, Luke Shors, Marko Vujicic and Afsaneh Zolfaghari. It draws on research contributions from James McDonald Buchan, Shampa Audrey Corry, Donna Muirhead, Oscar Ocho, Pauline Reid, Ann C. De Roche and Elizabeth Ward. Editorial support was provided by Imran Mujawar and Fiona Mckintosh, logistical and document processing support by Mary Dowling, Veronica Jarrin and Judith Williams. The work was carried out under the general direction of Chingboon Lee, David Warren, Keith Hansen, Evangeline Javier, Carolyn Anstey and Yvonne Tsikata.

The peer reviewers were Caglar Ozden, Magdalena Manzo, Amit Dar and Gillian Barclay (Pan American Health Organization). Additional comments were received from Mary Mulusa, Shiyan Chao and Amparo Gordillo-Tobar.

The study design benefitted from consultation with Ministers of Health, their teams and nurses associations from Barbados, Guyana, Jamaica, St. Lucia, St. Vincent & the Grenadines, and Trinidad & Tobago as well as with staff from the Pan American Health Organization. The report benefitted from comments on an early draft by the Caribbean Regional Nurse Council through the Secretariat of the Council of Human and Social Development of CARICOM and a review of its messages in a public panel discussion with Fitzhugh Mullan (George Washington University) and Patricia Pittman (AcademyHealth and Johns Hopkins School of Advanced International Studies) held at the World Bank offices in April 2009.

A. EXECUTIVE SUMMARY

1. The present report concludes the second phase of the cooperation between CARICOM countries and the World Bank to build skills for a competitive regional economy. It focuses on the nurse labor and education markets of the English-speaking CARICOM. The topic was suggested by Ministers of Health concerned with chronic staffing shortages in local health facilities and anecdotal evidence of high migratory outflows. The chronic staff shortages are likely to hamper the quality and efficiency of health services, both of which are critical factors in attracting international businesses and retirement locales. The rationale for focusing on nurses was that they compose the largest group of health care professionals in the ES CARICOM and play a critical role in strengthening health services in the face of the demographic and epidemiological transition in the region. Moreover, major achievements in improving and harmonizing curricula, degrees, and licensing procedures among the English-speaking countries of CARICOM facilitate the international competition for this globally scarce human resource.

2. The chief objective of this second research phase was to produce a comprehensive assessment of the nurse labor and education markets of the ES CARICOM. Despite major research efforts, data limitations remained a significant problem. However, information gathered was sufficiently robust and complete to provide for the first time a comprehensive picture. As we elaborate in this report, it shows a highly fragile supply-side equilibrium that will be increasingly insufficient to meet local demand.

3. We estimated that approximately 7,800 nurses constituted the active supply in the region. This translates into a nurse per 1,000 population ratio of 1.25 with roughly 1 nurse per 1,000 population directly providing care. These levels compare unfavorably to those in OECD countries where ratios tended to be 10 times higher. Over 90 percent of all nurses practicing in the ES CARICOM were employed in the public sector. Less than 10 percent of were providing primary care; a level which is likely insufficient to effectively respond to the health challenges associated with the demographic and epidemiological transitions occurring in the English-speaking CARICOM.

4. The demand for nurses exceeded supply in the region with approximately 30 percent of all approved positions vacant. Vacancy rates may understate the true needs of poorer countries in the region. They were calculated based on approved positions in the public sector for which there is funding and are, thus, subject to budgetary constraints. Furthermore, based on our analysis, it did not appear possible to fill these vacant positions by mobilizing trained nurses who were inactive as rates of participation in the labor market were extremely high.

5. Annual attrition rates were about 8 percent with outmigration the main source. Canada, the UK, and the US represented the primary destination countries. We estimated that the number of English-speaking CARICOM-trained nurses working abroad was roughly three times the number working in the English-speaking CARICOM. To our knowledge, this ratio of health migrants compared to the locally remaining stock is without parallel in the world. Our analysis also showed that current rates of emigration appeared to be lower than in the past. Furthermore, we found that individual countries'

were not substantially impacted by intra-regional migration, but this may change with the full implementation of the Caribbean Single Market Economy.

6. Emigration appeared not only to cause significant shortages of nurses in the region, but the brightest nurses were the ones leaving to work abroad. Our research suggests migratory flows were primarily driven by wage differentials, network effects, and worker dissatisfaction at home.

7. We identified 43 pre-service (general nursing) programs producing slightly less than 600 graduates per year. Combined with recent initiatives to recruit nurses from abroad, this translated into a net increment rate of approximately 10.5 percent. With the increment rate slightly above the attrition rate, the supply-side equilibrium was insufficient to fill existing vacancies in the short, medium and long-term.

8. In the case study countries, we observed three types of nursing schools with different levels of autonomy as well as sources of funding; public, semi-autonomous, and private schools. Nurse education programs in the region tended to be publicly provided. In addition, governments co-financed autonomous and private nursing schools. However, we observed an early trend towards co-payments by students. Information from a survey of Jamaican nurses showed that there was an increase in the proportion of students paying for their own tuition. Publicly financed and provided nurse education as well as publicly financed and provided health care appeared to preclude private providers offering nurse training programs despite high levels of unmet demand.

9. Our data suggested that the number of annual graduates was highly constrained by low completion rates. We estimated that on average only approximately half of the students in the case study countries completed their studies. These low pass rates raised concerns about the quality of education.

10. Our analysis indicated that there was an insufficient number of nurse tutors. This shortage is likely to be the major constraint to expand and strengthen nurse training capacity in the region. We estimated that the student to tutor ratio was 30:1. Given the need for tutors with specialized training skills and the need for providing personal attention to students through active-learning methodologies, it was likely that this ratio was too high to achieve high quality levels.

11. Our analysis did not identify any demand-side constraints to significantly scale-up nurse training in the English-speaking CARICOM. It showed that between the years 2004-2006, there were on average three qualified candidates competing for every position in nurse training programs.

12. All countries in the region have taken significant steps to increase the quantity and quality of nurse graduates. In 2006, an estimated 1,000 nursing students graduated in the five case study countries, a record high during the period we examined. In addition, efforts were made to improve curricula and pedagogical approaches as well as to harmonize nurse education programs.

13. Nonetheless, we estimated that under current policies, with the notable exception of training as the exclusive source of increments in line with the principle of self-sufficiency, the gap between demand for and supply of nurses will widen from 3,400 nurses today to 10,700 nurses in 2025. Given this predicament, we examined the impact

of different policy action on future shortages focusing on supply-side interventions. Specifically, we investigated the feasibility and impact of expanding training capacity and improving completion rates. Both approaches seemed generally feasible. However, they would require a substantial increase in the number of nurse tutors. In the short-term, this potential constraint could likely be relaxed through a variety of innovative measures such as promoting one-year online courses for nurse tutor education or by importing nurse tutors through bilateral arrangements with high capacity countries.

14. Maximizing the completion rate and increasing intake by 50 percent would result in a 230 percent increase in the annual number of nurse graduates, which would translate to an increase of 2,200 nurses by 2015 and 6,200 by 2025. Maximizing the completion rate and increasing intake by 100 percent would result in a more than three-fold increase in the number of nurse graduates, which would translate to an increase of 3,100 nurses by 2015 and 9,600 by 2025. Even though this second, more aggressive scenario would result in increments into the labor market significantly exceeding attrition, these efforts would still be insufficient to meet the demand for nurses in the region by 2025. In fact, with the exception of St. Vincent and the Grenadines, no country would meet its demand for nurses. We estimated that the costs of expanding training capacity and improving completion rates between 2009 and 2020 would total between US\$ 17 and US\$ 31 million depending on the scenario.

15. With the current high migration and high subsidization levels, benefits accrue to the student and economies abroad, while increased costs are exclusively born by the English-speaking CARICOM governments. Nurse training in the English-speaking CARICOM could be financed under a model that more fairly assigns costs to those who benefit. Our analysis showed a pattern of costs and benefits that suggest a tripartite financing model of nurse training, including contributions from students, local, and foreign governments.

16. Current shortages could easily be exacerbated as the fragile supply-side equilibrium erodes. As factors controlling attrition are primarily beyond the control of local governments, changes in the external environment could quickly destabilize this delicate balance. Relaxed entry regulations in destination countries outside the region may lead migration to return to or exceed historic levels. In addition, with the full implementation of the CSME, increased levels of intra-regional migration along socio-economic and wages gradients are likely, threatening the fragile supply-side equilibrium in some of the ES CARICOM countries.

17. Compounding this potential of increased emigration, our survey data showed that high levels of dissatisfaction existed among nurses in the region. In addition, our survey suggested that a major impediment to emigration was the lack of knowledge about migration logistics and work opportunities. Outflows and in turn nurse shortages would worsen as non-migrants who have considered the possibility of emigrating become more informed about their options.

18. If the English-speaking CARICOM is to address current and future nurse shortages, be increasingly protected against a large outflow of nurses, and simultaneously recognize an individual's right to freedom of movement and right to access health services, then various policies must be examined. The most important policies include (i)

increasing completion rates; (ii) increasing nurse training capacity through increasing the number of nurse tutors; (iii) managing migration; (iv) mobilizing the inactive supply; and (v) improving the allocation of existing human capital must all be explored. Focusing on strategies (i), (ii), and (iii) are critical as they represent the biggest areas of current losses.

19. In the short term, we believe that addressing completion rates may be the best entry point to bolster the workforce in the region. With only an average of 55 percent of students graduating in the region, drop-outs represent a tremendous loss of potential human resources. Because many schools in the region have substantially higher completion rates, we believe that region-wide improvements in completion rates are possible. Strategies, such as establishing national monitoring systems on retention, increasing the flexibility of the curriculum to accommodate different schedules and interests, creating smaller learning groups and identifying peer mentors have all been shown to improve retention of students.

20. In the medium term, increasing nurse training capacities appears to be the most viable option to meet the demand for nurses in the English-speaking CARICOM. Our analysis showed that unlike other regions in the world, the capacity of the education system is not a binding constraint to scaling up the number of nurses. Infrastructure constraints can be relaxed with additional financing. Clinical opportunities exist in substantial excess of what is being utilized for training. However, creative strategies need to be used to address the insufficient number of nurse tutors. English-speaking CARICOM countries should consider promoting policies, many of which can be developed under the Global Agreement on Trade in Services, such as (i) training nurse tutors outside the region; (ii) using in-service programs offered on-line; (iii) allowing for the temporary recruitment of nurse tutors from Canada, the UK and the US; and (iv) drawing on the Diaspora to meet the needs for tutors with specific clinical skills and areas of expertise.

21. Managed migration policies attempt to reconcile two human rights - the right to freedom of movement and the right to access to health services. Because these rights may be at odds, practical implementation of these ideas has in general been difficult, technically as well as politically. Globally, well-documented and evaluated systemic approaches are scarce. Regionally, a managed migration program emerged just recently and gathered support from several stakeholders. However, upon a recent review, initiatives remained largely driven by individual countries or individual organizations with little impact to date. However, the threat imposed by the growing demand for nurses in prime destination countries on the current fragile supply-side equilibrium in the English-speaking CARICOM warrants that all policy options be carefully revisited and explored.

22. As noted earlier, all case study countries were engaged in activities and/or had plans to improve the quality of nurse education and increase the number of nurses trained. Consultations with individual countries should take place to assess these plans. In the course of our research, we learned that monitoring and evaluation data of the nurse labor and education markets were scarce. Given the potential fragility of the ES CARICOM nurse labor market, it is critical that countries more closely monitor nurse labor market (e.g. vacancy levels, skill-mix, and attrition including migration) and nurse education market (e.g. student to tutor ratios, intake rates, and completion rates).

23. Ultimately, we believe that a false dichotomy exists between choosing to focus on increasing nurse training capacity versus focusing on managing migration; in fact, both must be done jointly and immediately. If the ES CARICOM is to address current and future nurse shortages, be increasingly protected against a large outflow of nurses and simultaneously recognize an individual's right to freedom of movement, the ES CARICOM must both increase the number of nurse graduates and manage migration.

24. A regional effort to strengthen and scale-up nurse training is critical to success. The scarcity of tutors, the intra-regional distribution of health care capacity and the limited number of institutions offering higher degrees warrant regional coordination. Ideally, country initiatives would be collated into a single, regional strategy. Moreover, the implementation of the CSME and associated increases in intra-regional migration requires a coordinated approach to govern the nurse education and labor markets.

25. Managing migrations requires reaching out to destination countries, the goal being to establish and agree on annual flows, cost-sharing arrangements for necessary investment in nurse training capacity and technical support. Such agreements would be in the best interests of both source and destination countries, as they make flows more transparent and predictable and facilitate workforce monitoring and planning on both ends. It would help destination countries that struggle to achieve self-sufficiency in reconciling immigration policies with foreign policies. However, as for efforts to strengthen and scale-up training capacity, only a regional initiative is likely to succeed. Given the discrepancies between the sizes of workforces in the ES CARICOM vis-à-vis Canada, the UK, and the US, only a joined approach of ES CARICOM countries would create a win-win situation. More recent experiences of attempts to manage migration suggest that small scale initiatives do not sustain the interest of destination countries (Dawson 2006).

26. Efforts to strengthen and scale-up training capacity and manage migration should be combined with financing reforms that more fairly assign costs to those who benefit. A tripartite financing model appeared to be most appropriate with contributions from governments in the ES CARICOM, from governments in destination countries and students themselves.

27. Collectively, the discussed actions have the potential to stabilize the delicate demand and supply equilibrium of nurses in the ES CARICOM. Swift corrective measures are of utmost importance.

B. INTRODUCTION

28. **Over the past decade, the Caribbean Community (CARICOM) has made significant achievements in advancing economic and political integration.** CARICOM member countries have taken steps to harmonize economic, monetary, and fiscal policies as well as legislation and standards in various sectors. For example, in health and education, efforts have been made to establish common equivalency standards and accreditation systems (e.g. the accreditation for education in medical and other health professions). They created and implement the CARICOM Single Market and Economy (CSME) that includes, among other objectives, free trade in goods, services, capital, and skills (CARICOM 2008).

29. **To fully realize the potential of regional integration, CARICOM countries and the World Bank have worked together to build skills and increase the community's competitiveness.** The common market promises to boost private investment. Effectively competing for these investments, however, hinges on the availability of skilled labor. Historically, the region has invested greatly into the education of its citizens. Literacy levels are among the highest in the world. Access to education is free, including by and large the tertiary level. Despite these efforts and achievements, previous analyses suggest that the shortage of skilled workers increasingly hampers the community's competitiveness. Therefore, CARICOM countries and the World Bank agreed to investigate how to meet the demand for skilled labor. The results of the first phase of this collaboration are detailed in the report "School and Work in the Eastern Caribbean: Does the Education System Adequately Prepare Youth for the Global Economy" (Blom & Hobbs 2008). The report concludes that the education system requires significant strengthening to assure that young people are adequately prepared for jobs required in the global, high-technology economy.

30. **The present report concludes the second phase of the cooperation between CARICOM countries and the World Bank to build skills for a competitive, regional economy. It focuses on nurses in the English-speaking (ES)* CARICOM.** The topic of this second phase was suggested by Ministers of Health concerned with chronic staff shortages in local health facilities and anecdotal evidence of significant migratory outflows. The chronic staff shortages are likely to hamper the quality and efficiency of health services, both of which are a critical factor in attracting international businesses and retirement locales. Analyses focus on nurses who compose the largest group of health care professionals in the CARICOM and play a critical role in strengthening health services in the face of the demographic and epidemiological transition in the region. Furthermore, major achievements in improving and harmonizing curricula, degrees and licensing procedures among the ES CARICOM countries facilitate the international competition for this globally scarce human resource. This report complements work carried out by CARICOM countries in collaboration with the Pan American Health Organization to understand the regional labor market of physicians.

* From here on, we will refer to the English-speaking CARICOM as ES CARICOM

31. **This report provides for the first time a comprehensive picture of the ES CARICOM nurse labor market and demonstrates a highly fragile supply-side equilibrium insufficient to meet local demand.** Efforts by ES CARICOM countries have begun to shed light on the national and regional nurse labor markets. These efforts are particularly important as the transition to a fully implemented CSME as well as the nurse shortages facing high-income countries necessitated a greater understanding of the national, regional, and the global nurse labor market. Thus far, they included research to better understand the linkages between the nurse labor and nurse education markets. Yet, findings remained inconclusive as data were scarce and of limited quality. Therefore, the chief objective of this study was to fill critical information gaps and produce a comprehensive assessment of the regional nurse labor market. As we discuss in this report, despite major research efforts, data limitations remained a problem. However, information gathered was sufficiently robust and complete to provide a comprehensive picture of the ES CARICOM nurse labor and education markets. As we elaborate in this report, the key feature of the ES CARICOM nurse labor market is a highly fragile supply-side equilibrium that is insufficient to meet local demand.

32. **The report has the following structure:** Subsequent to this introduction, the report provides an overview of the studies and corresponding research approaches that constitute the basis for this report. For the reader not familiar with the CARICOM, section D provides background information including general labor market trends. Section E analyzes the current local and regional nurse labor markets. A section follows that examines the interaction between the regional and the global nurse labor market. Section G then describes the ES CARICOM nurse education market. Section H presents projections for the nurse labor market and section I discusses issues and possible policy responses.

33. **The report is complemented by a supplement.** This supplement provides detailed descriptions of: (i) all research methods; (ii) the data used to produce graphs and figures in this report; (iii) the finding of country case studies in the ES CARICOM; (iv) the findings of country case studies in Canada, the United Kingdom (UK) and the United States (US); and, (v) results of a survey among Jamaican nursing school graduates.

C. RESEARCH APPROACHES

34. This section provides a brief description of the research that informed this report. More detailed information on data and methods can be found in the supplement to this report. The research included eight streams of work: Case studies in the ES CARICOM; case studies in selected OECD countries; a survey among cohorts of nurse graduates in Jamaica; supply and demand projections for the ES CARICOM under different policy scenarios, estimates of nurse wage differentials between ES CARICOM countries and the US, cost estimates for strengthening and scaling-up nurse training according to different policy scenarios, cost and benefit estimates from training nurses in the ES CARICOM and several literature reviews (Table1).

Table 1: Main Research Activities

Stream of Work	Primary Sources of Information	Purpose
Case studies of ES CARICOM countries (Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines; and Trinidad and Tobago)	MOH, nursing schools, hospitals as well as census	Determine characteristics and trends of the nurse labor and education market of the English-speaking CARICOM
Case studies of selected OECD countries (Canada, U.K., USA)	Census, nurse registers, and nurse examination data	Determine stocks, flows and driving forces of migratory flows from the ES CARICOM to main destination countries
Jamaican Nurse Survey	Jamaican nurse graduate cohorts (1980, 1990, 2000, 2005)	Identify and determine the role of factors driving labor and education market behaviors of ES CARICOM nurses
Supply and demand projections for the ES CARICOM	Case studies of ES CARICOM countries, Jamaica Nurse Survey, UN Population Division (2007), and Canadian Nurses Association (2002)	Project supply and demand for nurses in the ES CARICOM under various policy scenarios
Nurse wage differentials across ES CARICOM countries and the US	Country case studies in the ES CARICOM, MOH Barbados, country case study US.	Confirm wage differentials as a key factor determining migratory flows; predict direction of flows within the ES CARICOM under the full implementation of the CSME
Costs of strengthening and expanding nurse training	Country case studies in the ES CARICOM	Estimate the costs of strengthening and scaling-up nurse training in the ES CARICOM according to various policy scenarios
Costs and benefits of training nurses in the ES CARICOM	Case studies of ES CARICOM countries, UK Council of Deans, World Bank Doing Business Report, World Development Indicators	Estimate the costs and benefits of training nurses in the CARICOM to define a fair financing model that assigns costs to those who benefit
Literature Reviews	Published and grey literature	Validate and contextualize findings as well as to establish the evidence-base for recommendations

ES CARICOM Country Case Studies

35. In close collaboration with governments, we studied the nurse labor and education markets of five ES CARICOM countries: Guyana (GY), Jamaica (JM), St. Lucia (SL), St. Vincent and the Grenadines (SVG), and Trinidad and Tobago (TT). Collectively, these countries represent approximately 80 percent of total ES CARICOM population. Findings reflect information collected and triangulated from multiple sources including the Ministries of Health (MOH), Ministries of Education (MOE), nursing schools and councils, and public and private health care facilities. Data was further validated through key informant interviews and information published in the literature.

36. Gathered data provided a comprehensive picture of the regional nurse labor market including active and inactive supply, increments and attrition, demand and wages. In addition, they shed light on key features of the education market including characteristics of the supply (number of schools, intake, completion rates) and its financing.

Case Studies of OECD Countries

37. The literature suggests that primary destination countries are the Canada, the UK and the US (Docquier & Bhargava 2006). To explore stocks of nurses abroad and wages, we used census data from Canada (Statistics Canada 2007), the UK (ONS 2008), and the US (IPUMS 2007). To estimate inflows of ES CARICOM nurses, we used registration data from Canada (CIHI 2007), the UK (NMC 2005) and the US (NCSBN 2005).

Jamaican Nurse Survey

38. We carried out a survey among graduates from nursing schools in Jamaica to identify labor and education market behaviors as well as their determinants. The survey targeted nurses who successfully completed the general nursing programs (3 year program, diploma only) of the Excelsior Community College and Kingston School of Nursing in 1980, 1990, 2000, and 2005. We gathered contact information of former students with the help of the Nursing Council of Jamaica, public hospitals, nursing schools, and nurses themselves. The survey was conducted on the phone. Respondents were ensured confidentiality of the information they provided.

Supply and Demand Projections

39. We estimated future supply of nurses in the ES CARICOM based on information on increments and attrition. We estimated future demand for nurses using information on current demand that we adjusted for changes in the utilization of health services due to the demographic and epidemiological transition. For this purpose, we used a model developed for Canada that we adjusted for the life expectancy of ES CARICOM citizens.

Nurse Wage Differentials

40. We estimated nurse wage differentials among ES CARICOM countries and in comparison to the US. Differentials were calculated using wage data for Barbados or the US as the point of reference. We constructed estimates for the ES CARICOM from wage

scales for the public sector. We obtained data for the US from the analysis of census data. Data were adjusted for purchasing power parity.

Costs of Strengthening and Expanding Nurse Training

41. We estimated the costs of strengthening and expanding nurse training according to the policy scenarios underlying the projections of demand and supply. We employed a budget approach, that is, we estimated costs for each calendar year. Cost data were taken from the ES CARICOM country case studies for Jamaica and St. Vincent and the Grenadines. Likewise, assumptions were based on information obtained in the ES CARICOM country case studies.

Cost Benefit Analysis

42. We carried out a cost benefit analysis of training nurses in public schools in Jamaica with the prime objective to learn how to better assign costs to those who benefit. The analysis considered nurses and the governments of Jamaica, the UK and the US as potential beneficiaries and salaries, VAT levied on the spending of remittances, and savings in nurse training as benefits.

Literature Reviews

43. We collected and synthesized information from the published literature, grey literature as well as the internet on (i) the nurse labor market in the ES CARICOM, (ii) the nurse education market in the ES CARICOM, (iii) CSME, (iv) demand for nurses in OECD countries as well as entry regulations of Canada, the UK and the US, (v) the production function of nurse education, (vi) determinants of nurse workforce performance, (vii) GATS, and (viii) uni-, bi- and multi-lateral initiatives to manage migration of health professionals in the Commonwealth. This information was used to inform the design of case studies and surveys, to validate and contextualize findings as well as to establish the evidence-base for the discussion of alternative policy options.

D. THE CARICOM

44. **The CARICOM is a community of primarily English-speaking Caribbean countries that promotes regional integration and trade.** Since its inception in 1973, the CARICOM has emphasized the “promotion of functional cooperation, especially in relation to human and social development, and in integrating the economies of Member States” (CARICOM 2008). To this end, the CARICOM has devised health, environment, science and technology, tourism, and foreign policies that serve to benefit all Member States.

An integral piece of the CARICOM is the management of the Common Market, which aims to liberalize trade in goods among its members. Over 95 percent of the goods produced in the region move freely within the CARICOM. In keeping with its goal to foster

Box 1: The Caribbean

The broadest definition of the term, the Caribbean, is the geographical interpretation of a region consisting of the Caribbean Sea, its islands, and the surrounding coasts.

Caribbean Islands	Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, British Virgin Islands, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Navassa Island, Netherlands Antilles, Puerto Rico, St. Barthelme, St. Kitts and Nevis, St. Lucia, St. Martin, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos, and the United States Virgin Islands.
Other countries with a Caribbean coastline	Belize, Colombia, Costa Rica, French Guyana, Guatemala, Guyana, Honduras, Nicaragua, Panamá, Suriname, and Venezuela.

economic, regional integration, Suriname and Haiti have become full members over the past decade. Notably, both are non-English-speaking countries. CARICOM also pursues ambitions to become increasingly competitive and active in the Latin American and global trade market. Bilateral trade agreements with Venezuela, Colombia, the Dominican Republic, Cuba, and Costa Rica and full and effective participation in multilateral trade negotiations (e.g. Free Trade of the Americas and the World Trade Organization) have strengthened CARICOM’s position in the global trade market.

45. **While CARICOM member countries have a similar history, culture, and tradition of democratic governance as well as shared common socio-economic goals, they are highly diverse with respect to population size, socio-economic development, and health outcomes (Table 2).** Geographical size ranges from Anguilla with an area of 91 square kilometers to Guyana on the mainland of South America with 215,000 square kilometers. Population size varies from as small as approximately 48,000 in St. Kitts and Nevis to 9.53 million in Haiti (World Bank 2007). Economic diversity ranges from Trinidad and Tobago’s primarily petroleum based economy to that of tourism and manufacturing in Jamaica and agriculture and mining in Guyana. There is also a wide variety in human development achievements with Antigua and Barbuda, Barbados, Bahamas, and St. Kitts and Nevis ranked according to the human development index as high level countries, and all other countries ranked as medium level countries with the notable exception of Haiti (low level).

Table 2: Profiles of CARICOM Countries

Country	CSME	Language	Population (2005)	GDP per capita, PPP (current international US\$) (2005)	Infant mortality (per 1,000 live births) (2005)	Life expectancy at birth (years) (2005)	HDI
Antigua and Barbuda	Yes	English	83,000	16,032	10.5		0.815 (H)
Bahamas	No	English	323,300		13.0	72.43	0.845 (H)
Barbados	Yes	English	291,900	16,957	11.0	76.51	0.892 (H)
Belize	Yes	English	291,800	6,253	15.2	71.81	0.778 (M)
Dominica	Yes	English	72,000	7,229	13.2		0.798 (M)
Grenada	Yes	English	106,500	7,052	17.0		0.777 (M)
Guyana	Yes	English	739,500	2,563	47.0	65.58	0.750 (M)
Haiti	No	French	9,296,300	1, 068	62.7	59.77	0.529 (M)
Jamaica	Yes	English	2,654,500	6,112	25.9	70.90	0.736 (M)
Montserrat	Yes ^a	English					
St. Kitts and Nevis	Yes	English	48,000	13,129	17.5		0.821 (H)
St. Lucia	Yes	English	164,800	8,879	12.5	74.17	0.795 (M)
St. Vincent and the Grenadines	Yes	English	119,100	6, 431	17.4	71.18	0.761 (M)
Suriname	Yes	Dutch	452,500	6,702	29.5	69.78	0.774 (M)
Trinidad and Tobago	Yes	English	1,323,700	18,818	32.3	69.41	0.814 (H)

Sources: WDI and GDF databases, World Bank (2007); UNDP (2009).

Note: Associated members include Anguilla, Bermuda, British Virgin Islands, Cayman Islands, and Turks and Caicos; observing members include Aruba, Columbia, Dominican Republic, Mexico, Netherlands Antilles, Puerto Rico, and Venezuela.

a. Montserrat is currently awaiting entrustment (approval) of the UK to participate in the CSME.

46. **The commonalities and differences across CARICOM member countries allow them to benefit from regional cooperation and integration.** Member States recognize that being part of the CARICOM is beneficial, and they are bridging differences and highlighting commonalities. The CARICOM facilitates the intra-regional trade of diverse natural resources, skills, and services. It pools resources and integrates markets to increase the competitiveness of member countries in the global market. Acting as a single entity in bilateral and multilateral negotiations strengthens the voice of the Caribbean globally and helps lobbying for its interests. Working together helps CARICOM countries to realize their common objectives of full employment, efficient use of resources, and increased global competitiveness, all of which will facilitate achieving sustained economic development and improving the standard of living in all member states.

47. **The CSME is designed to create a single market where people, goods, services, and capital move freely.** The CSME extends the Common Market to include free trade and movement of goods, services, capital, and skills by eliminating intra-regional barriers. Other key elements of the CSME include the Right of Establishment, that is the right of businesses to establish operations without restrictions in any member state; the harmonization of legislation and economic, monetary, and fiscal policies; the establishment of common standards and measures for equivalency and accreditation; the harmonization of standards to ensure acceptability of goods and services traded; the creation of a common external tariff and a common trade policy; and the promotion of free movement. The CSME is being implemented in a phased approach with the consolidation of the Single Market and the initiation of the Single Economy by 2009.

48. **Free movement of services and skills and free travel will increase intra-regional mobility and integration of labor markets.** Free movement of services will enable businesses, corporations, banks, insurance companies, engineers, medical personnel, and other self-employed service providers of any member state to offer services throughout the region and without restrictions. The main objective is to facilitate trade and investments in the service sectors of the region. Consumers will be able to choose among a wider range of

Table 3: CSME Modes of Free Movement of Services

Mode 1: Cross-border supply	Definition: Through cross border trade, that is from one territory to another Examples: Tele-medicine, distance training, and e-banking
Mode 2: Consumption abroad	Definition: Through consumption abroad, where the consumer moves to access the service Examples: Tourist, student, or patient receiving services in host country
Mode 3: Commercial presence	Definition: Through commercial presence, that is where a business is established in the place where the service is being used Examples: Domestic subsidiaries of foreign insurance companies, hotel chains, banks, or construction companies
Mode 4: Presence of natural persons	Definition: Through temporary movement of persons, where persons of one member enter the territory of another member to supply a service Examples: Health care providers, teachers, and accountants

Source: CARICOM Secretariat.

service providers, thus encouraging competition and offering higher quality of services and lower costs for consumers. To this end, the CSME includes four modes of free movement (Table 3). The **free movement of skills** will allow individuals to seek employment in any member state without the need for permits to stay and work; however, to work a Certificate of Recognition of CARICOM Skills Qualification is required which can be obtained from the designated ministry of the home or host country. In a first phase, free movement of skills will be limited to university graduates, professional nurses, tertiary-trained teachers, media persons, artists, musicians, and sportspersons. Once the provisions relating to free movement of services are combined with the Right of Establishment (see above), other professionals will be able to freely move within the region, e.g., business owners, the self-employed, managerial, technical, and supervisory staff as well as spouses and immediate, dependent family. In recognition of the need for regional accreditation bodies which serve to assess qualifications for equivalency, member states have agreed on the Accreditation for Education in Medical and other Health Professionals. **Free travel** will allow CARICOM nationals to travel into and within the region. A defining symbol of the CARICOM will be the CARICOM passport.

49. **The CSME will be implemented in an environment of tertiary sector predominance, relatively high unemployment, and significant migratory net-flows.** On average, the economies of CARICOM member states are driven by service industries, employing approximately 60 percent of the labor force. About 12 percent of the labor force are unemployed with two-thirds being women. Annually, the region experiences negative net migration flows of approximately 2 percent of its population. As we demonstrate in the following section, the situation in the nurse labor market is different as unemployment among nurses is close to zero percent and annual net migration flows on average are approximately 6%.

E. THE ES CARICOM NURSE LABOR MARKET

In this section, we present key features of the ES CARICOM nurse labor market. Specifically, we examine the active supply of nurses, the demand for nurses, the inactive supply of nurses, and intra-regional dynamics.

Active Supply of Nurses

50. **We estimated that there were in 2007 approximately 7,800 nurses working in the ES CARICOM.** Our analysis of the nurse labor markets indicated that there were nearly 6,300 active nurses in the case study countries. Extrapolating from the case study countries, we estimated that there were approximately 7,800 active nurses in the ES CARICOM.

51. **The portrait that emerged from looking at one country in the region, Jamaica, indicated that a very high proportion of nurses were married women with children who contributed a significant portion of their household income, and whose main reason to enter the field of nursing had been to acquire the skills to help other people.** The findings from the Jamaica Nurse Survey indicated that of those nurses interviewed, 99 percent were women. Among the nurses who graduated in 1980, 1990, and 2000, at least half of them were married and on average had one or two children. Characteristics of nurses and their families, such as the educational attainment of nurses' parents, were more heterogeneous in nature. Approximately 9 out of 10 nurses interviewed reported contributing at least half of their household income, indicating that nurses were significant wage earners in their households. The most cited reason for entering the nursing profession was "the ability to help people". Other, commonly cited reasons included job security and "earned respect of their family". The findings were consistent with literature describing factors affecting an individual's motivation to work as a health professional (Manongi et al 2006, Mathauer & Imhoff 2006).

52. **Over 90 percent of all nurses worked in the public sector.** On average, the vast majority of nurses worked in the public sector, however, data varied from country to country. For instance in both St. Lucia and Guyana, an estimated 20 percent to 25 percent of all nurses worked in the private sector. Implication of this finding is discussed in greater detail in Section I. For now, we note that these low rates of participation in the private sector may signal room for increasing employment in the growing private health care market in the ES CARICOM.

53. **Close to three quarters of all active nurses worked at the secondary and tertiary care level.** Approximately 72 percent of nurses in the ES CARICOM provided secondary and tertiary care. An additional 13 percent carried out administrative and managerial functions. Variations in the proportion of nurses in administrative and managerial functions across countries were largely explainable. For example, in smaller countries, the higher proportion of nurses carrying out administrative and managerial functions could be attributed to the number of nurse management positions being relatively independent of the size of facilities.

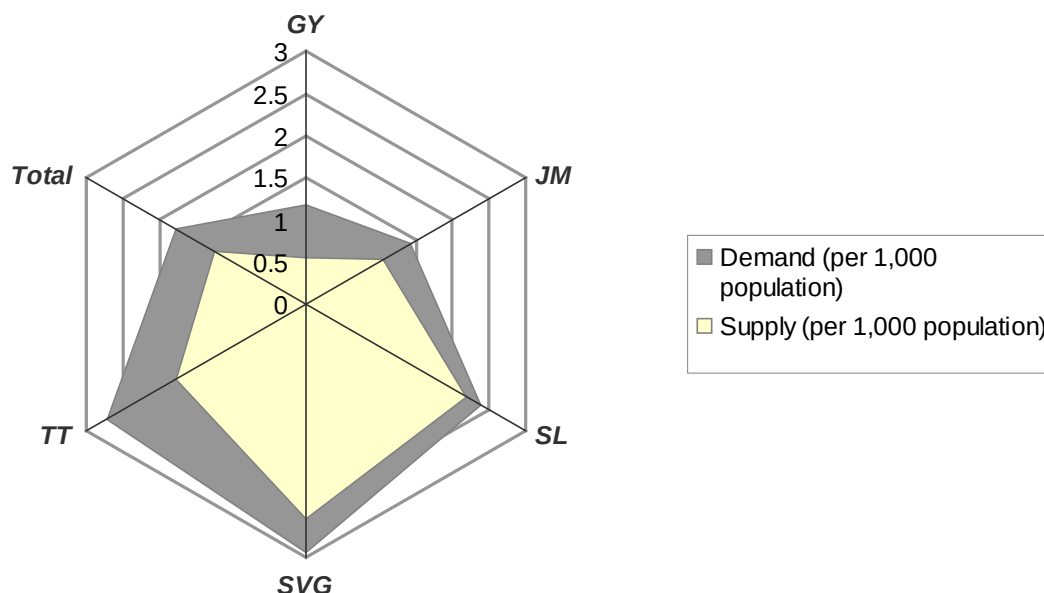
54. **The converse of high participation in secondary and tertiary care was a low participation of nurses in primary care.** Less than 10 percent of all active nurses were directly involved in the provision of primary care. This proportion varied from 5 percent in Guyana to 15 percent in both St Lucia and St. Vincent and the Grenadines. Variations among countries could be explained by the existence of nursing cadres specifically trained for outreach activities to prevent diseases and promote health. With stabilizing but relatively high HIV/AIDS and growing non-communicable disease prevalence rates (e.g., diabetes, heart disease, and stroke), the overall low proportion of nurses providing primary care has important implications for the region's ability to efficiently prevent and control such conditions through activities including patient education and behavior change communication (UNAIDS 2007, Hennis & Fraser 2004). Indeed, previous studies in the CARICOM indicated that the primary care services most efficiently performed by nurses, for example, glycemic controls in diabetic patients, need to be strengthened and scaled-up (Hennis & Fraser 2004).

55. **Absolute numbers of active supply translated into an average of 1.25 nurses per 1,000 people in the ES CARICOM with roughly 1 nurse per 1,000 people involved in the provision of care.** Values ranged from 0.55 nurses per 1,000 people in Guyana to close to 3 nurses per 1,000 people in St. Vincent and the Grenadines. Nurse per population ratios must be examined in light of the ratios for other human resources for health. As such, there were no strict criteria for determining the number of nurses any given country should have. However, comparisons with other middle and high-income countries suggested that the observed levels were low. Though they report shortages, nurse per population ratios in middle and high-income countries were up to 10 times higher than the average in the ES CARICOM. For example, a recent estimate for the nurse per population ratio in the US was 7.7 (Buchan et al 2005, HRSA 2002).

Demand for Nurses

56. **The demand for nurses outweighed supply with approximately 30 percent of all approved positions for nurses vacant at the time of the study (Figure 1).** We estimated demand for nurses as the sum of current supply and unmet demand. As a proxy for unmet demand, we used the number of funded nursing positions that were not filled (vacancies). For the case country studies, we estimated that there were approximately 2,765 vacancies. Vacancy rates were highest in Guyana with over half of all approved and funded positions vacant. Absolute numbers of vacancies in case study countries translated into an average of 0.55 vacancies per 1,000 population. Extrapolating from case studies, we estimated that there were approximately 3,340 vacancies in the ES CARICOM.

Figure 1: Nurse Shortages in Case Study Countries

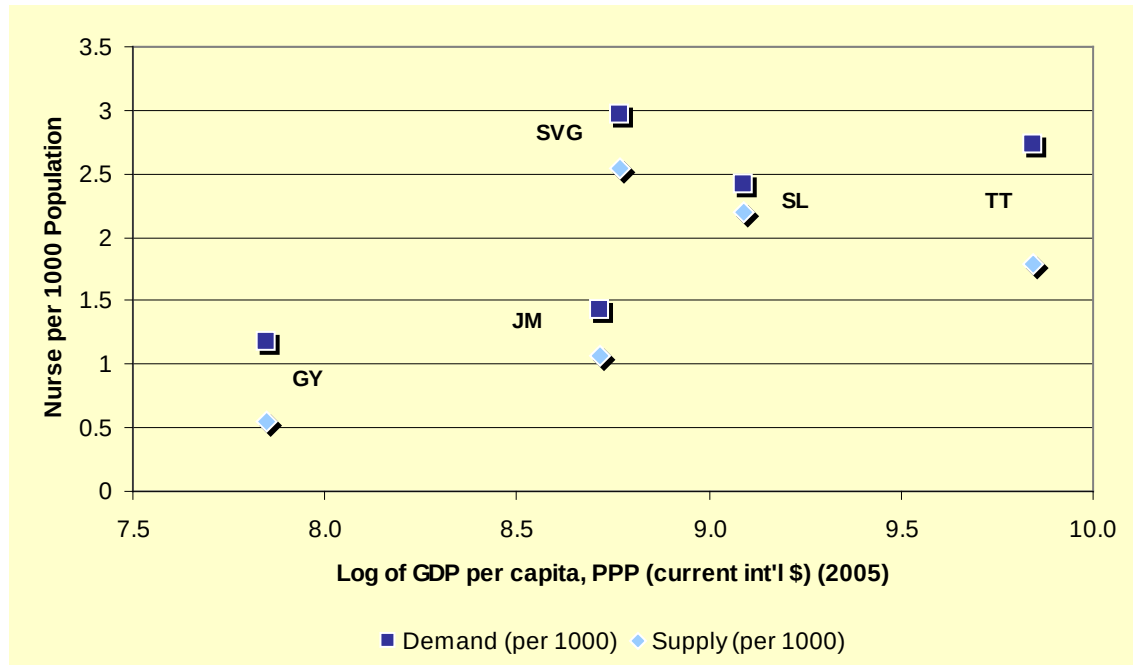


Source: Authors' calculations based on country case study data.

57. **Vacancy rates were highest in primary care settings.** Interestingly, although nurses providing primary care represent less than 10 percent of all nurses, in one country where we were able to obtain vacancy rates by care setting (Guyana), vacancy rates in primary and community settings represented as much as 30 percent of all vacant positions. This observation reaffirmed the finding of low participation and the reported need to strengthen primary care to respond to increasing importance of disease prevention and health promotion.

58. **Vacancy rates, as an indicator of unmet demand, may understate the true needs, in particular of poorer countries in the region.** Vacancy rates may not adequately predict human resource needs, as they are based on approved positions in the public sector and thus subject to budgetary constraints. Indeed, our analysis demonstrated that poorer countries in the region had fewer approved positions for nurses per 1,000 people and because it is unlikely that these countries have fewer health needs, we conclude that the number of vacancies in these countries may be an under-representation of the true need for nurses (Figure 2).

Figure 2: Nurse per 1,000 population vs. GDP per Capita



Source: Authors' calculations based on country case study data and WDI and GDF databases, World Bank (2007).

Inactive Supply of Nurses

59. **Based on the Jamaica nurse survey, it did not appear possible to fill vacant positions by mobilizing trained nurses who are inactive as rates of participation in the labor market appeared to be very high.** The survey of Jamaican nurses indicated that the proportion of nurses that was not working as a nurse was very small (Table 4). While selection bias may have limited access to those individuals who were working outside of nursing, the high response rate we obtained (79 percent of the valid sample) made it likely that even if a bias was present, the magnitude was small. The observed low level of inactive supply makes the ES CARICOM distinct from many other regions where a large number of nurses decide not work at all or work outside the field of nursing (Vujcic & Evans 2005, OECD 2004).

Table 4: Employment Status of Nurses in Jamaica

Employment Status	Number
Full-time, nurse	152
Part-time, nurse	3
Retired	2
Studying	1
Full-time, occupation other than nurse	1
Unemployed	0
Others	0
Total	159

Source: Jamaica Nurse Survey (2008).

Intra-regional Dynamics

60. **Intra-regional migration did not substantially impact individual countries' nurse labor markets.** Looking beyond the individual countries' nurse labor markets to the ES CARICOM, we found little evidence for significant intra-regional migratory flows. In the case studies, we identified only three nurses that migrated from country to country during the period 2002 to 2006. Likewise, the survey among Jamaican trained nurses identified only 3 out of 159 nurses that left Jamaica to work in different CARICOM countries. As we discuss in section H, intra-regional migratory flows may, however, increase with the full implementation of the CSME.

Increments and Attrition

61. **Jointly, the ES CARICOM countries faced a fragile equilibrium of increments and attrition.** While the total increment rate, was approximately 10.5 percent, the attrition rate was roughly 8 percent. Increment and attrition rates varied significantly across countries.

62. **Local graduates and recruits from abroad constituted the main sources of increments.** Flows from both sources are discussed separately in the following sections. In summary, graduates from local nurse programs constituted the main source of increments. Net education increment rates varied across countries from 6 to 9 percent. In addition to training nurses, some countries recruited nurses from outside the region.

63. **Outmigration was the main source of nurse workforce attrition.** Attrition rates varied tremendously across countries with Guyana reaching a record high of approximately 20% in 2007. Outmigration was the main source of attrition, accounting on average for approximately 70 percent of losses. Detailed findings are presented in the following section.

F. INTERACTIONS BETWEEN THE ES CARICOM AND THE GLOBAL NURSE LABOR MARKETS

The ES CARICOM nurse labor market cannot be fully understood without information about the interaction with the global nurse labor market. In this section, we examine first emigration patterns including the stock of ES CARICOM-trained nurses in prime destination countries, trends of migratory outflows, and factors determining the migration decision. Furthermore, we present inflows of nurses into the region, including ES CARICOM nurses returning home as well as foreign-trained nurses.

Stocks of Caribbean-Trained Nurses in Prime Destination Countries

64. **Prime destination countries of nurse migrants from the ES CARICOM are Canada, the UK and the US.** The ES CARICOM has strong linguistic, educational and historic ties and commonalities with Canada, the UK and the US. Previous studies demonstrated that these ties and commonalities facilitate migration with the effect that Canada, the UK and the US are the prime destinations of migrants, and in particular health migrants from the ES CARICOM (Thomas-Hope 2002, Dawson 2005).

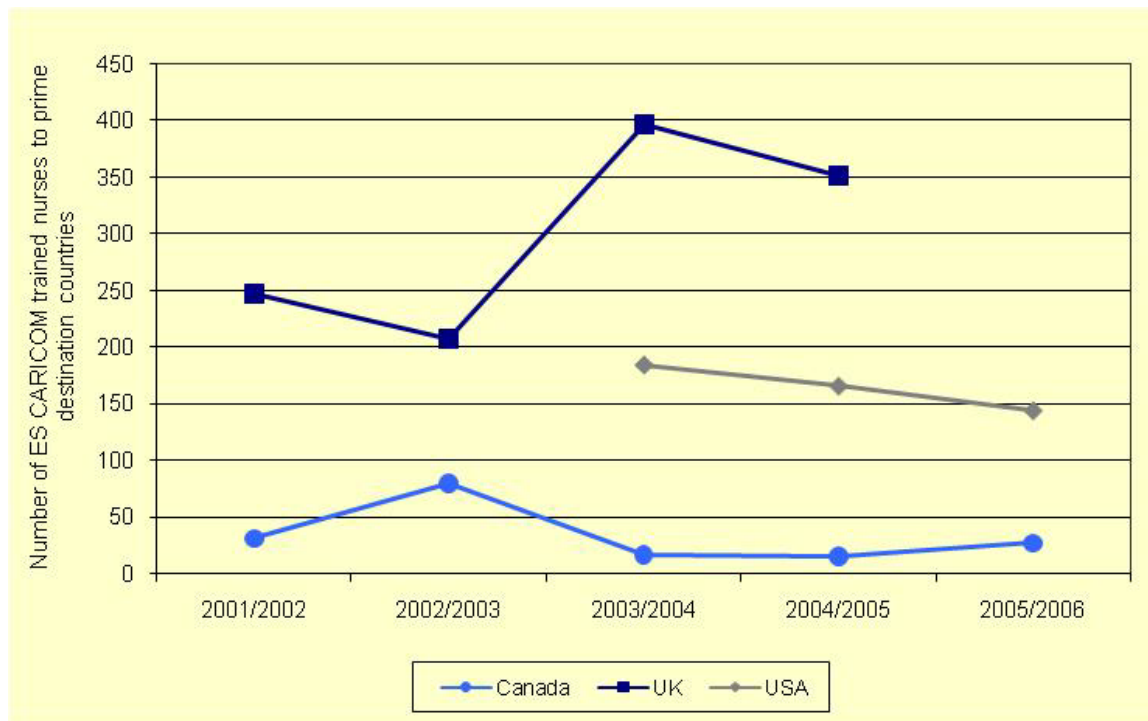
65. **We estimated that the number of ES CARICOM trained nurses working in the prime destination countries was roughly three times as high as the number of nurses working in the ES CARICOM.** We estimated that roughly 750 nurses trained in the ES CARICOM were living in Canada, 4,750 nurses trained in the ES CARICOM in the UK, and 15,500 nurses trained in the ES CARICOM in the US. To our knowledge, the ratio of health migrants (21,500) compared to the locally remaining stock (7,800) is without parallel in the world (Clemens & Pettersson 2008). Estimates of nurse stocks in prime destination countries were derived from census data from 1980, 1990, and 2000 in the US and from 2001 census data for Canada and the UK. All census data presented the limitation that they detailed only the occupation but not the training, let alone in which country the respondent received her training. We tackled the challenge of distinguishing between migrants trained in the ES CARICOM versus the US by adjusting estimates for the age of migration and dynamics of cohorts. However, we did not adjust for the fact that the US census does not identify migrants trained in the ES CARICOM that are not practicing their profession. Consequently, the presented estimates may underestimate the true number of ES CARICOM trained nurses in the prime destination countries.

Trends of Migratory Outflows

66. **We estimated recent trends of migratory outflows using data derived from registration processes in destination countries.** Recognizing that the stock of nurses abroad was the result of migratory flows over period of several decades, we estimated trends of recent outflows based on the number of ES CARICOM trained nurses initiating or completing the registration process in prime destination countries. For Canada and the UK, we obtained information on nurses successfully completing the registration process. For the US, we used data from the Nursing Council Licensure Examination (NCLEX).

67. **We estimated that more than 1,800 nurses emigrated from the ES CARICOM to Canada, the UK and the US during the period 2002 to 2006.** Based on data obtained from the Canadian Institute for Health Information (CIHI), we estimated that 170 ES CARICOM trained nurses registered in Canada between 2002 and 2006. Analyzing data obtained from the UK Nursing and Midwifery Council, we estimated that 1,150 ES CARICOM trained nurses registered in the UK during the same time period. NCLEX data suggested that approximately 495 ES CARICOM trained nurses migrated to the US between 2004 and 2006. In sum, we estimated that at least 1,800 ES CARICOM nurses migrated to the three prime destination countries to seek work between 2002 and 2006 (Figure 3).

Figure 3: Flows of ES CARICOM trained Nurses to Prime Destination Countries between 2002 and 2006



Source: Authors' calculations based on Canadian Institute for Health Information (2006), the UK Nursing and Midwifery Council (2005), and the US Nursing Council Licensure Exam (2004-2006)

68. **Estimates of large stocks of ES-CARICOM trained nurses in prime destination countries and continuous out-flows correlated well with results of the Jamaican nurse survey.** Approximately 30 percent of Jamaican graduates lived abroad, the vast majority (90 percent) in Canada, the UK and the US (Table 5). The percentage of migrants varied dependent on the year of graduation. The proportion of migrants among the 2000 and 2005 cohorts was very small, suggesting that the current 5-year bonding policy was effective. However, the proportion of migrants among the 1990 cohort was 61 percent and for the 1980 cohort 86 percent. The proportion of migrants may be even underestimated in the survey. We identified the residence of only 79

percent of graduates. As it was more difficult to identify migrants, the proportion of them among the non-participants may therefore even be higher than among survey participants.

Table 5: Residency of Jamaican-trained Nurses for Cohorts of Nurse Student Graduates

Residence	1980	1990	2000	2005	Total
Jamaica	6	20	58	86	170
Bahamas	0	1	0	0	1
Bermuda	1	1	0	0	2
Canada	4	1	0	0	5
Europe	0	1	0	0	1
UK	1	3	1	0	5
USA	32	24	4	0	60
Other	0	0	3	1	4
Sub-total Abroad	38 (86%)	31 (61%)	8 (12%)	1 (1%)	78 (31%)
Total	44	51	66	87	248

Source: Jamaica Nurse Survey (2008)

69. **Flow rates into prime destination countries appeared to be declining; however, a change in entry regulations could quickly reverse this trend and deplete the current stock of ES CARICOM nurses.** The comparison of stocks to outflows suggests that past flows had been significantly higher. For example, if more recent flows reflect past migratory patterns, we would have expected a stock of approximately 11,500 rather than 21,500 nurses in prime destination countries. However, it is important to note that because nurse migration from the ES CARICOM is fundamentally constrained by entry regulations and nursing bodies' accreditation policies in prime destination countries, any relaxation of these constraints may cause nurse emigration levels to return to or exceed its historically high levels. In the US alone, it has been estimated that there will be shortage of over 800,000 nurses by the year 2020 (HRSA 2002). Because projected demand far outstrips the US' current training capacity for nurses, there is a very real possibility that authorities may ease entry regulations. This would potentially cause massive levels of immigration of ES CARICOM nurses. In fact, in 2005 the US instituted a new immigration policy that provided 50,000 permanent residency visas specifically for nurses (Arendes-Kuenning 2006). Similarly, substantial increases in nurse shortages have also been projected for Canada. Unmet demand is expected to reach 78,000 nurses in 2011 and 113,000 in 2016 (Canadian Nurse Association 2002).

70. **Migration appeared not only to cause significant shortages of nurses in the region but it also may be taking some of the brightest nurses.** Although subject to recall bias, when asked about class rank in the Jamaica Nurse Survey, nearly all migrants indicated being in the top 30 percent of their class with 67 percent indicating that they

were in the top 10 percent (Table 6) . 81 percent of non-migrants also reported being in the top 30 percent with 45 percent of non-migrants interviewed reporting being in the top 10 percent. Because we would anticipate that the mean class rank for all nurses in the sample should be at the 50th percentile, it is likely that there is a systematic bias present in nurses recalling their class performance and/or a bias in the sample of nurses interviewed where stronger students were easier to locate and more willing to be interviewed. Nonetheless, there appears to be a division between migrants and non-migrants on academic performance.

Table 6: Class Rank of Nurses, by Non-Migrant and Migrant RNs, RNs Interviewed (1980 and 1990 cohorts)

Class Rank	Home	Abroad	Total
Top 10%	10	18	28
Top 30%	8	8	16
Top 50%	4	1	5
Bottom 50%	0	0	0
Total	22	27	49

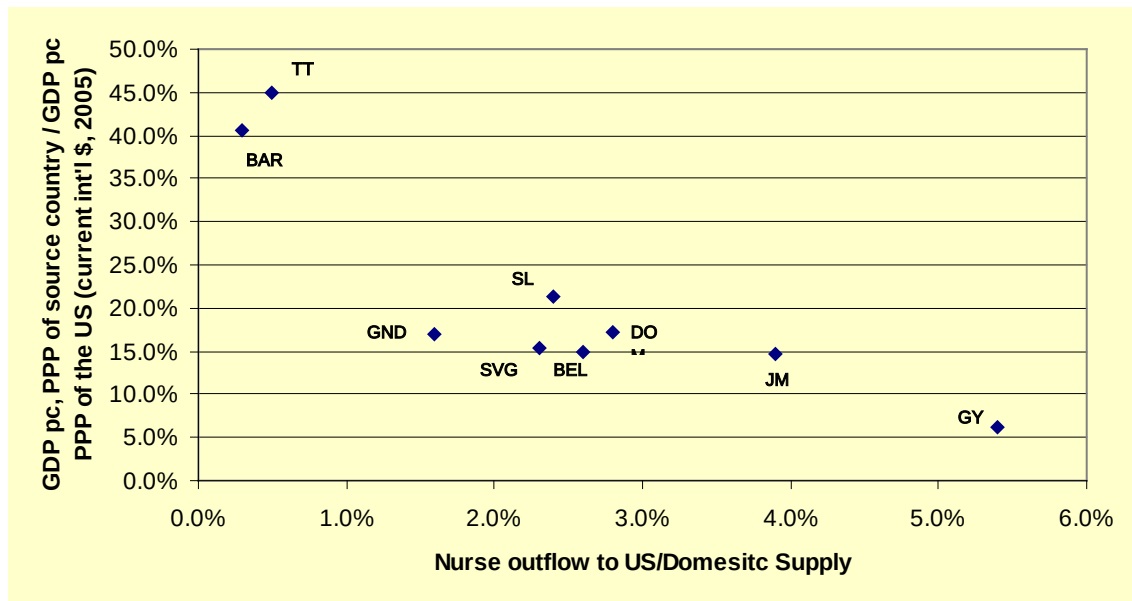
Source: Jamaica Nurse Survey (2008)

Factors Determining the Migration Decision

71. **US immigration and entry regulations create a quasi-experiment that allowed us to identify determinants of migratory flows.** US immigration and entry regulations provide conditions to test hypotheses about migration in a quasi experiment. In contrast to other destination countries, the US does not give preferential treatment to citizens of foreign countries under, for example, bilateral agreements. Instead, applicants are treated independent of citizenship on a first come, first served basis. Thus, they compete for entry into the US and, as a result, the volumes of country-specific immigration flows correlate with the demand and population size in the source country.

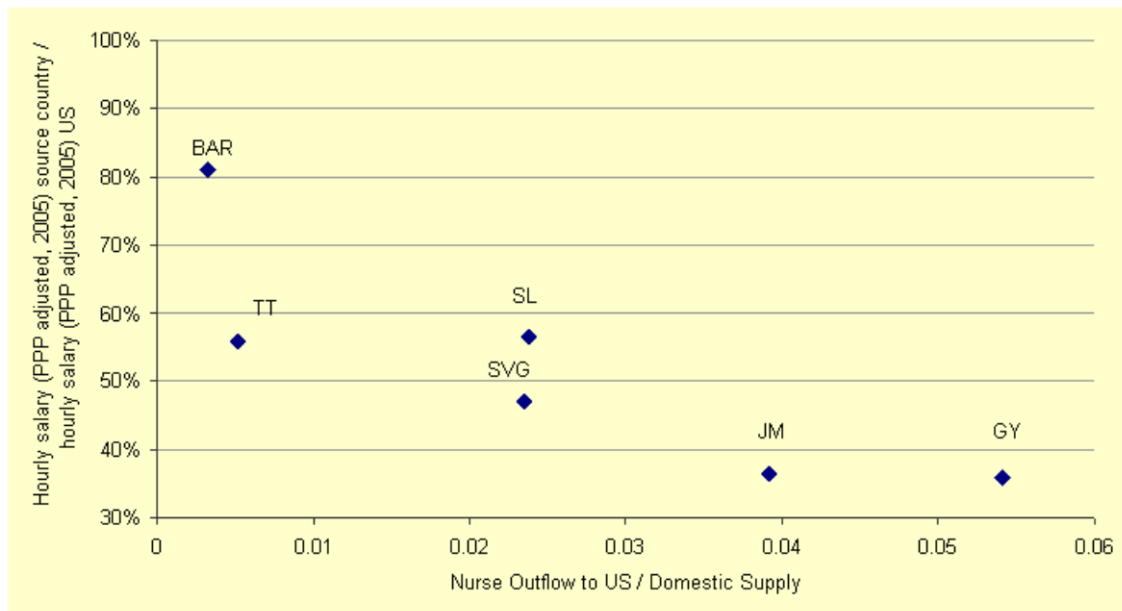
72. **Migratory flow rates from ES CARICOM countries to the US appeared to correlate directly with the GDP per capita differential (Figure 4).** Using this quasi-experimental design, we tested the role of socio-economic development as a predictor of migratory flow rates of nurses. Specifically, we compared GDP per capita differentials and flow rates to the US for the five case study countries as well as Barbados, Belize, Dominica and Grenada. While the data set is too small to test for statistical significance, flow rates appear to correlate with GDP per capita differentials.

Figure 4: Flow Rates in Relation to GDP



Source: Authors' calculations based on US NCLEX data and WDI and GDF databases, World Bank (2007)

Figure 5: Flow Rates in Relation to Wages



Source: Authors' calculations based on country case study data, wage information kindly provided by the Government of Barbados and US NCLEX data (2007)

73. **Likewise, migratory flow rates from ES CARICOM countries to the US appeared to correlate directly with wage differentials (Figure 5).** The literature suggests that wage differentials are driving forces of migratory flows (Vujicic et al, 2004). Therefore, we also compared the role of wage differentials as a predictor of migratory flow rates of nurses to the US. The available data set was smaller than for GDP per capita, however, a similar pattern occurred. Trinidad and Tobago appeared to be an outlier as wage differentials would suggest a higher rate of migratory rates of nurses. This phenomenon may be the result of most recent, fast economic growth that has yet to translate into higher wages for health professionals and specifically for nurses as well as other efforts to improve the work satisfaction.

74. **The importance of wages for the migration decision was confirmed by observations of the Jamaica Nurse Survey (Table 7, 8, and 9).** Approximately 95 percent of Jamaican nurses who migrated reported that a key motivation for the decision to migrate was to earn a better salary. Furthermore, 85 percent of migrant nurses were satisfied with their salary, but only 6% of non-migrant nurses. Finally, satisfaction with remuneration improved after migration. While 91% of migrants were satisfied with their salary after migrating, only 32% were satisfied with their salary prior to going abroad.

Table 7: Rational for Emigration, RNs Interviewed and Ever Lived Abroad

Reason Given for Emigration	Not Important	Important	Total
Earn better salary	2 (6%)	29 (94%)	31

Source: Jamaica Nurse Labor Survey (2008)

Table 8: Satisfaction with Salary, by Country of Residence, RNs Interviewed

	Country of Residence							
	Jamaica				Abroad			
	VS	S	D	VD	VS	S	D	VD
Salary	0 (0%)	8 (6%)	52 (41%)	68 (53%)	5 (19%)	18 (66%)	4 (15%)	0 (%)

Source: Jamaica Nurse Labor Survey (2008)

Abbreviations: VS: Very satisfied; S: Satisfied; D: Dissatisfied, VD: Very dissatisfied.

Table 9: Satisfaction with Salary Before and After Migration, RNs Interviewed

	Before Migration		After Migration	
	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Salary	7 (32%)	15 (68%)	20 (91%)	2 (9%)

Source: Jamaica Nurse Labor Survey (2008)

75. **The importance of wages for the migration decision seemed to be associated with the frequency of migrants sending remittances.** Nearly 80 percent of migrants participating in the Jamaica Nurse Survey reported that they send remittances to family members in their home country. The magnitude of remittances was on average approximately US\$ 2,500 per year or 5% of net income with slight variations across cohorts.

76. **In addition to wages, satisfaction with other work-related factors played an important role (Table 10, 11, and 12).** The Jamaican Nurse Survey suggested that for four out of five migrants more interesting work and better career development opportunities abroad were key factors in their migration decisions. Likewise, the survey demonstrated that levels of satisfaction with the work environment as well as work and career opportunities was consistently higher among migrants than nurses working in Jamaica. Furthermore, satisfaction with the work environment and work and career development opportunities improved after migrating. While 86% were satisfied with the work environment and 91% with work and career development opportunities after migrating; only 55% were satisfied with their work environment and 50% with work and career development opportunities prior to migrating.

Table 10: Rational for Emigration, RNs Interviewed and Ever Lived Abroad

Reasons Given for Emigration	Not Important	Important	Total
Provide good education opportunities for children	12 (40%)	18 (60%)	30
Better work and career development opportunities	6 (19%)	25 (81%)	31

Source: Jamaica Nurse Labor Survey (2008)

Table 11: Satisfaction with Work Environment and Work and Career Development Opportunities, by Country of Residence, RNs Interviewed

	Country of Residence							
	Jamaica				Abroad			
	VS	S	D	VD	VS	S	D	VD
Work Environment	4 (3%)	52 (40%)	53 (41%)	20 (16%)	4 (15%)	19 (70%)	4 (15%)	0 (0%)
Work and Career Development Opportunities	9 (7%)	47 (37%)	63 (49%)	9 (7%)	13 (48%)	10 (37%)	4 (15%)	0 (0%)

Abbreviations: VS: Very satisfied; S: Satisfied; D: Dissatisfied, VD: Very dissatisfied.

Source: Jamaica Nurse Labor Survey (2008)

Table 12: Satisfaction with Work Environment and Work and Career Development Opportunities Before and After Migration, RNs Interviewed

	Before Migration		After Migration	
	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Work Environment	12 (55%)	10 (45%)	19 (86%)	3 (14%)
Work and Career Development Opportunities	11 (50%)	11 (50%)	20 (91%)	2 (9%)

Source: Jamaica Nurse Labor Survey (2008)

77. **Established social networks with the Diaspora in destination countries appeared to facilitate the migration decision and to direct migration flows.** Survey data showed that an estimated 90 percent of migrants knew at least one person (e.g., parent, spouse, child, sibling, relative, classmate, or colleague) living in the destination country and, in particular, in the area where they finally settled prior to moving abroad. Moreover, 80 percent of the migrants identified in the Jamaica Nurse Survey living and working in the US had settled in two states, New York and Florida. Likewise, the analysis of the 2000 US census showed that 90 percent of the estimated 8,600 Jamaican nurses living in the US had settled in New York (50 percent) and Florida (37 percent). These data suggested that nurses tended to migrate to areas where communities similar to home already exist. Moreover, they suggested that the networks formed between non-migrants, migrants, and returning migrant serve to share information about the process as well as to convey the benefits of migration.

78. **Conversely, insufficient access to information about migration was one of the main reasons given as to why nurses working in Jamaica have not migrated.** More than half of Jamaican nurses, who have never lived abroad, stated that the main reason for remaining in their home country was the lack of information about migration opportunities. Given this finding, it is likely that subject to the availability of visa an improved access to information is likely to result in higher migration rates (Table 13).

79. **The Jamaican Nurse Survey identified two other main reasons for the decision to remain in the home country: an effective bonding scheme and family considerations (Table 13).** As mentioned earlier, the government's bonding scheme appeared to be effective. Only one nurse of the 2005 cohort of graduates obliged to serve at home had migrated. Furthermore, migrants among the 1980 and 1990 cohorts had worked on average more than 8 years in Jamaica before deciding to move and work abroad. Finally, approximately 10% of all interviewed nurses reported that their obligation vis-à-vis the government was the main reason for remaining and working in their home country. Evidence to what extent family considerations influenced the decision to migrate was more mixed. Approximately 60 percent of migrant nurses stated that the prospect of better education opportunities for their children played an important role in their decision to migrate. However, only approximately 15 percent of interviewed non-migrant nurses stated that family ties were the main reason to remain in their home country. Furthermore, the proportion of nurses who had married prior to graduation was somewhat higher among migrants compared to non-migrants as well as the proportion of nurses who had a child prior to graduation (Table 13).

Table 13: Reason for not Migrating

Reason for not migrating	Total
Do not know about opportunities to migrate	64 (53%)
Do not want to leave family	16 (13%)
Others	13 (11%)
Bonded	12 (10%)
Like my home country	9 (8%)
Want to gain more experience before migrating	3 (2%)
Like my job	2 (2%)
Generally not interested in migrating	1 (1%)
Total	120

Source: Jamaica Nurse Labor Survey (2008)

Inflows

80. **The Jamaica Nurse Survey revealed that close to three-quarters of migrants intended to return home; however only half reported that they would return to work as a nurse.** Information about the number of nurse migrants who returned to their home country and worked as a nurse was scarce and anecdotal. Hence, as a proxy, we researched the intent to return. And indeed, survey results suggested that a high proportion of migrants intend to return. A variety of reasons were given, ranging from an obligation to care for parents, a desire to contribute to their home country, and simply because ‘it is home’. However, it remained uncertain whether this intent would translate into actual return migration. Furthermore, it is important to note that only 50 percent of those who stated that they intend to return home plan to work as a nurse.

81. **In addition to return migrants, the inflow of foreign nurses represents a small but important source of new nurses.** Case study data suggested that between 2002 and 2007 approximately 1,000 foreign nurses entered the ES CARICOM to practice their profession. Cuba was the major source country followed by India, Nigeria, and the Philippines. Flows from these countries were not constant throughout this 6-year time period. Migrants entered in waves, likely facilitated by short-term agreements between governments and/or health training and delivery institutions.

Box 2: Recruitment of Foreign Nurses in Trinidad and Tobago

In an effort to address nurse shortages, Trinidad and Tobago’s Ministry of Health has recruited foreign nurses under bilateral agreements. The recruitment of foreign nurses was strategically targeted to certain specialties for which there is high demand. In 2003, a first group of nurse migrants came from Cuba. Since then, almost a hundred Cuban nurses have been recruited; more than 70 percent of them trained at the Bachelor’s degree level. More recently, Trinidad and Tobago has begun recruiting Filipino nurses. Filipino nurses’ high quality training and proficiency in the English language distinguish them from nurses in other possible source countries. Since 2005, almost 200 Filipino nurses have been recruited.

G. THE ES CARICOM NURSE EDUCATION MARKET

In this section, we describe the supply of nurse education, including segments created by different financing models, identify supply-side constraints, explore demand for nurse education, and summarize ongoing and planned reforms.

Supply

82. **In the case study countries, we identified 43 pre-service (general nursing) and in-service (post-basic) programs offered at 24 nursing schools, with variation among countries by number of schools, size of programs, and degrees.** In all case study countries, schools offered general nursing (3 years diploma), midwifery, and nursing assistant training programs. In Guyana, Jamaica and Trinidad and Tobago, schools also offered post-basic programs (e.g., public health, critical care, operating theatre, nurse management, and nurse tutor programs). In the same three countries, schools also offered Bachelor Degree Programs as both pre and in-service curricula. In Jamaica, the University of the West Indies School of Nursing also offers a Master's degree program.

83. **We estimated that 585 students graduated in 2006 from general nursing pre-service programs.** According to graduation records and registers, 470 students graduated in the case study countries in 2006 from pre-service, general nursing programs, the majority from diploma programs. When we extrapolated to the ES CARICOM, we estimated that 585 students graduated from pre-service programs. It should be noted, however, that throughout the period 2002 to 2007 the number of graduates was not constant. In Jamaica and Trinidad and Tobago, we observed fluctuations from year to year. In Guyana, St. Lucia, and St. Vincent and the Grenadines, we observed years in which no student graduated at all.

84. **Net increment rates from training locally averaged 8 percent with variations from 6 percent to 9 percent across case study countries.** We estimated net increment rates from local training for case study countries as the ratio of pre-service graduates compared to the total supply of nurses. On average the net increment rate was 8 percent. Net increment rates were highest in Trinidad and Tobago along with St. Vincent and the Grenadines, followed by Jamaica, St. Lucia and Guyana. For now, we note that the net increment rate was lower than the attrition rate. We discuss the implications of this finding in section H.

Table 14: Net Increment Rates in 2006

	GY	JM	SL	SVG	TT	Total CSC	ES CARICOM
Net increment rate (Net increment / total supply)	8 %	9 %	6 %	8 %	6 %	8 %	8 %

Source: Authors' calculations based on country case study data

85. **In the case study countries, we observed three types of nursing schools with different levels of autonomy as well as sources of funding; public, semi-autonomous, and private schools.** Public schools were fully funded by governments and students paid no tuition. In the case study countries, these schools were the predominant provider of general nursing programs. Autonomous schools enjoyed certain levels of managerial freedom, including the right to charge tuition, but at the same time tended to receive direct subsidies from governments. Autonomous schools operated in Jamaica, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. Private nursing schools were rare. We identified two in Trinidad and Tobago and one each in Guyana and Jamaica. Two out of these four schools were run by churches.

86. **In line with free tertiary education policies, governments of case study countries tended to finance nurse education independent of the type of school.** As discussed above, governments operated the majority of schools. In addition, governments tended to co-finance autonomous. In addition and independent of the type of schools, governments supported students in paying for their living costs and tuition through stipends. For example, under the Government Assistance for Tuition Expenses (GATE) program of the government of Trinidad and Tobago, tuition was free for all citizens in undergraduate programs and covered 50 percent of tuition costs for postgraduate studies. Recipients of GATE funding were required to work in the country for a certain number of years upon completion of their program. If students did not comply with this obligation, they needed to refund tuition subsidies in full.

87. **At the same time, we observed a trend towards co-payments by students.** While students enrolled in the professional nurse education program in Guyana received a stipend of GYD \$15,000 per month, students enrolled in the Bachelor's degree program at the University of Guyana had to completely finance their education, however, facilitated by loans provided by the Ministry of Finance. In Jamaica, the government had scaled-down stipend programs for students at autonomous and private nursing schools. In line with this policy, the Jamaica Nurse Survey demonstrated an increase in the proportion of students paying their tuition themselves. In St. Lucia, students were required to pay an annual tuition for their training (Table 15).

Table 15: Proportion of Student Paying for Tuition in Jamaica

Proportion of students paying for their tuition	1980	1990	2000	2005	Average
Percent	5%	13%	11%	27%	18%

Source: Authors' calculations based on Jamaica Nurse Labor Survey (2008)

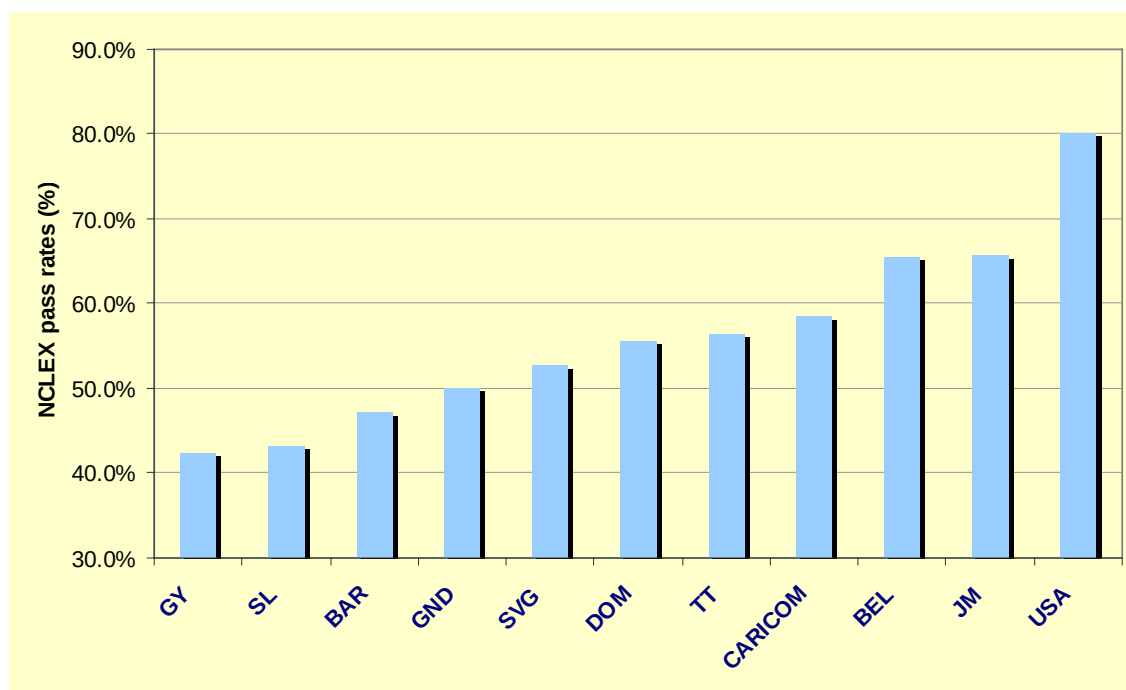
88. Despite substantial excess demand for nurse education, private schools remain the exception. The literature suggests that countries facing high levels of out-migration tend to experience a private sector response to unmet demand for the training of health professionals (Clemens et al 2007). As we demonstrate later in the report, in the case study countries, demand for nurse education significantly exceeded supply. However, we did not observe a major private sector response. We identified only three private nursing schools; all of them receiving direct or indirect public subsidies. To our knowledge, the only fully privately financed nursing school in the ES CARICOM is the Ross Nursing School in St. Kitts and Nevis (Garner 2007). It, however, primarily enrolls students from outside the region and prepares them according to US curricula. The limited private sector response may have to major

Supply-side constraints

89. The output of nursing schools was limited by low completion rates. In the case study countries, on average only half of nurse students completed their program. Although the potentially multi-factorial nature of failing to complete a program does not allow fully disentangling this outcome, it should be noted that there appeared to be an indirect relationship between the completion rate and the level of student subsidization. In fact, in St. Lucia, the one case study country where students had to pay full tuition, there was the highest rate of completion. This raised the question of whether students who were required to invest financially in their education were less likely to drop out. Furthermore, key informant interviews in Guyana revealed that a major cause of low completion rates was the failure to pass exams. Again, the potentially multi-factorial nature did not allow drawing final conclusions, the latter observations pointed to deficiencies in the qualification of students and/or the quality of training in some of the schools.

90. Low pass rates of ES CARICOM nurses in the US NCLEX also raised concerns about the quality of education. When examining pass rates of ES CARICOM nurse graduates in the US NCLEX, ES CARICOM nurse graduates were consistently outperformed by their US counterparts (figure 6). However, this data should be interpreted with caution. The NCLEX assesses abilities and skills in relative but not absolute terms, that is, in comparison to other nurses participating in the exam; furthermore, it may not reflect skill needs as in some of the ES CARICOM countries and may have cultural biases. Nonetheless, among ES CARICOM countries, Jamaican and Belize trained nurses performed best on the NCLEX with passing rates of over 60 percent; whereas, passing rates of nurses trained in other countries varied between 42 percent and 57 percent.

Figure 6: US NCLEX Pass Rates by Country of Training in 2000-2005



Source: Authors' calculations based on Nursing Council Licensure Examination (2000-2005)

91. **An insufficient number of nurse tutors likely impeded the quality nurse education.** The Caribbean Standards for Nursing Education suggest a student to tutor ratio of 25:1 in the classroom and 8:1 in the clinical area. According to numbers collected for 2006, we estimated that there were 130 tutors in the case study countries, of which 75 were directly providing training to pre-service nurse students. High drop out rates and our lack of understanding of when students drop out made it extremely difficult to estimate the student to tutor ratio. However, assuming that on average students who dropped out, dropped out mid-way through the programs, we estimated a 30:1 student to tutor ratio. Given the need for tutors with specialized training skills and the need for providing personal attention to students through active-learning methodologies, it was likely that this ratio was too high to achieve high standards of quality.

92. **Some nurse tutors may not meet education requirements.** In Jamaica, education standards require that persons teaching at the tertiary level should possess a Master's degree as a minimum qualification. However, among nurse tutors only about half met these qualifications. Hence, insufficient levels of training among nurse tutors may exacerbate the challenge of improving the quality of nurse education.

93. **The relative shortage of qualified nurse tutors would be a major constraint to expand and strengthen nurse-training capacity.** High student per tutor ratios and limited compliance with education requirements among tutors would likely hamper any major attempts to further expand and strengthen nurse education programs. It should be noted, however, that we observed significant differences across case study countries. At the same time, our analyses demonstrated that the number of training sites and patients

would be sufficient and not considered a binding constraint to expand and strengthen nurse education programs. As we explain below, using hospital beds as a proxy for clinical training opportunities, we estimated that the secondary and tertiary service delivery capacity would be sufficient to amplify current training capacities up to ten-fold.

Demand

94. **Our analyses did not identify any major demand-side constraints to scale-up nurse training in the ES CARICOM.** In the case study countries, between 2004 and 2006, on average three qualified candidates competed for every position in a nurse training program (Table 16). Moreover, 1 out of approximately 6 high-school graduates meeting minimum qualifications applied for nurse training programs. All this points to excess demand for nurse education. Together with the earlier documented excess demand for nurse labor, excess demand emphasized the need to overcome earlier identified supply-side constraints.

Table 16: Key Nurse Education Demand-side Indicators

	2004	2005	2006	Average
Qualified Applicants / Qualified High School Graduates	14.6%	15.1%	19.1%	1:6.2
Intake / Qualified High School Graduates	5.2%	4.0%	7.3%	5.7%
Intake / Qualified Applicants	35.6%	26.5%	38.2%	35.2%

Source: Authors' calculations based on country case study data

Ongoing and Planned Reforms

95. **All countries in the region have been taking significant steps to strengthen and expand nurse education.** For instance, Trinidad and Tobago substantially expanded intake in 2004, and thus doubled the number of nurse graduates from 2005 to 2006. As a result, in 2006, an estimated 1,000 nursing students graduated in the five case study countries, a record high during the period we examined. Also St. Vincent and the Grenadines significantly increased their intake into nursing schools, expecting an almost three-fold increase in graduates by 2008. In addition, efforts were made to improve curricula and pedagogical approaches as well as to harmonize nurse education programs. The latter reforms were driven by the mandatory Regional Nursing Council Registration Exam (RNCRE) that graduating nurses must pass to practice in all ES CARICOM countries with the exception of Guyana (Reid 2000). Despite these and other major efforts (Table 17), the following section demonstrates that additional initiatives are necessary to overcome nurse labor market shortcomings facing the region.

Table 17: Examples of Nurse Education Reforms in the ES CARICOM

Country	Reforms to Improve Nurse Education Capacity and Quality
Guyana	▪ Increase the training capacity and intake of the nursing schools ▪ Provide incentives for faculty staff to prevent their migration
Jamaica	▪ Phase out all diploma and certificate nursing programs; scale-up bachelor degree programs ▪ Update qualifications of nurse tutors from certificate and bachelor degrees to masters degrees, and train all new nurse tutors at the graduate level ▪ Prepare more clinical instructors and widen the clinical specialties (at tertiary level) of Post-basic
St. Lucia	▪ Expand training of lecturers, assistant lecturers, and clinical instructors for general nursing and midwifery disciplines ▪ Provide incentives to staff in the clinical areas ▪ Increase intake of nurse students
St. Vincent and the Grenadines	▪ Increase the intake into the program for registered nurses from 30 – 35 to 100 annually ▪ Rationalize the training of nurses to achieve greater efficiency ▪ Strengthen nurse training programs to attract students from abroad
Trinidad and Tobago	▪ Provide free in-service programs to expand professional development opportunities ▪ Recruit nurse tutors from abroad

Source: Key informant interviews

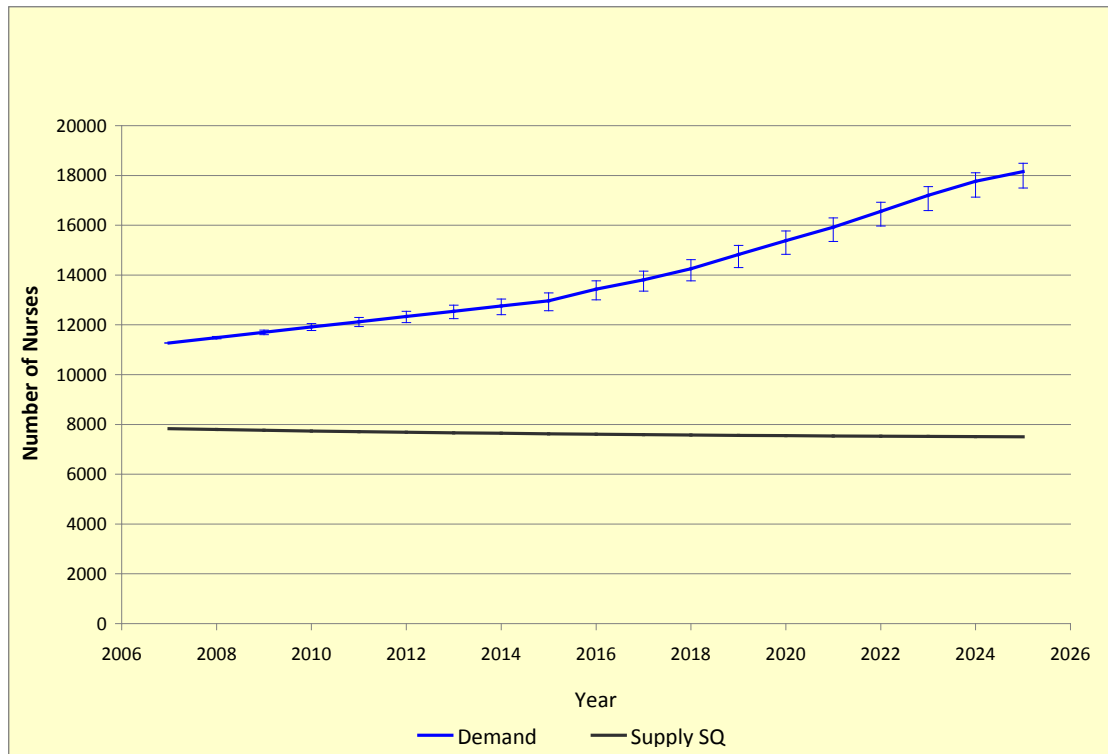
H. A REGIONAL NURSE LABOR MARKET OUTLOOK

In this section, we first examine how supply and demand are likely to evolve under current policies over the next 15 years. We then examine the likely impact of alternative nurse education policies on supply and consequently future nurse shortages and explore their costs and financing options. Finally, we discuss the likely impact of the full implementation of the CSME on intra-regional migratory flows of nurses.

Future Demand and Supply under Current Policies

96. **Under current policies, with the exception of relying on training as the only source of increments in line with the principle of self-sufficiency, we estimated that the gap between demand for and supply of nurses would widen from 3,400 nurses in 2007 to 10,700 nurses in 2025.** Demand according to health needs of the aging population increasingly suffering from chronic diseases would increase from 10,700 nurses today to 13,000 nurses in 2015 and 18,100 nurses in 2025. As attrition exceeds increments, over the same period, supply would slightly decrease from 7,800 in 2007 to 7,600 nurses in 2015 and 7,500 nurses in 2025. As a result, we estimated that unless there were major changes in the policy environment, nurse shortages would increase from approximately 3,400 nurses in 2007 to approximately 5,300 nurses in 2015 and approximately 10,700 nurses in 2025 (Figure 7).

Figure 7: Supply and Demand for Nurses in the ES Speaking CARICOM Under Current Policies



Source: Authors' calculations based on data from country case studies, the Canadian Nurses Association (2002), the United Nations Population Division (2007), and the World Bank's WDI and GDF databases (2007)

Future Supply, Demand and Shortages under Alternative Policy Scenarios

97. **Given that the gap between demand and supply would widen under current policies, we examined the impact of different policy actions.** Alternative policy scenarios focused on supply side interventions, namely increasing the number of nurse graduates to expand the size of the nurse workforce. As we discussed in section F, unilateral policy options for ES CARICOM governments to curb attrition were likely to be of little impact if destination countries should decide to increasingly draw on foreign nurses. Therefore, we did not attempt to model the impact of local policies to curb attrition. Modeling the impact of demand side-interventions, that is, the impact of interventions to lower the demand for health care was beyond the scope of this study.

98. **Among possible supply side interventions, we examined the impact of increasing the number of graduates and consequently the supply of nurses by expanding training capacity and improving completion rates.** We analyzed two scenarios of expanding training capacity; an increase of intake of students by 50 percent and 100 percent (Table 18). Furthermore, we coupled the increase in intake with improvements in completion rates. As discussed earlier, we estimated that in case study countries completion rates were on average about 55 percent. In the scenario analysis, we assessed the impact of increasing completion rates to 85 percent. Similar levels were achieved by several nursing schools investigated in the case country studies.

Table 18: Description of Scenarios for Scaling-up Supply

Scenario	Description
Base case scenario	Current policies are maintained
Scenario 1	A 50 percent increase in the intake of students into pre-service general nurse training programs and increase of graduation rate from 55 percent to 85 percent
Scenario 2	A 100 percent increase in the intake of students into pre-service general nurse training programs and increase in graduation rates from 55 to 85 percent

99. **The proposed approaches to increasing the number of annual graduates seemed technically feasible.** Prior to estimating their impact, we investigated the feasibility of the proposed approaches to increase the output of training institutions. In the analysis, we concentrated on aspects of technical feasibility. As we discuss later in this section, we believed that financial constraints could be overcome fairly easily. On the supply side, we paid particular attention to the need for nurse tutors as well as clinical training opportunities. The availability of these inputs to the production function was not only critical but may be difficult to boost. Furthermore, we investigated possible constraints to the demand for nurse training. As we demonstrate in the following paragraphs, any of these constraints could be relaxed and the proposed scenarios appeared therefore technically feasible.

100. Increasing intake and improving completion rates, however, would require substantial increases in the number of nurse tutors. Increasing training capacities would depend on the availability of tutors. We assumed that the number of tutors would proportionally increase in order to maintain the quality of teaching. Furthermore, we assumed that improving completion rates could be achieved by reducing the student-tutor ratio. While we recognized that there were multiple reasons for low completion rates (e.g. drop out due to family situations, financial constraints, or loss of interest), interviews conducted in Guyana pointed to the inability of students to pass exams as a major cause of low completion rates and, as a cause of the inability to pass exams, to a sub-optimal quality of training. At the same time, it is generally accepted that smaller class sizes allow for better education opportunities especially in clinical settings. According to the country case studies, we estimated that the student-tutor ratio was 30:1. The Caribbean Standards for Nursing Education recommend a student-teacher ratio of 25:1 in the classroom and 8:1 in clinical settings. This recommendation, however, may not allow for adequate quality of training, given all the specialized subjects taught, the varying sizes of institutions, and the distribution of schools within the region. In the scenario analysis, we therefore assumed a target student-teacher ratio of 10:1. In the short term, this target could be achieved by either promoting one-year online courses for nurse tutors or by recruiting nurse tutors from abroad. In the mid term, however, nurse tutor training capacities would have to be increased.

101. With the exception of tutors, instructors and supervisors, clinical training opportunities did not appear to be a binding constraint to boost nurse training capacity. Clinical training is a critical element of the nurse curriculum. Clinical training opportunities rest not only with the availability of tutors, instructors and supervisors, but also the number of training sites and patients. As a proxy for the availability of the latter, we used the number of hospital beds in the region. Assuming that the clinical training of a nurse student requires approximately 5 hospital beds over a 6-months period every year, we estimated the threshold above which an expansion of training capacities would be limited by clinical training opportunities. These estimates suggested that the secondary and tertiary level service delivery capacity was sufficient to amplify current training capacities up to ten-fold.

102. Also demand for nurse education did not appear to be a binding constraint to increase the number of graduates. Country case study data suggested that there were three qualified candidates competing for one nurse student position. This high demand was again confirmed by reports of willingness to pay for nurse education (Table 19). Information collected from the Jamaica Nurse Survey suggested that almost all nurses were willing to pay for their nurse education. On average, these nurses were willing to pay annually US\$ 1,200 and the amount increased to US\$ 1,500 if there would be guaranteed access to loans.

Table 19: Willingness to Pay for Nurse Training Education among Jamaica-trained nurses [US\$, 2007]

Country of Residence	WTP per Year		
	Without Access to Student Loan and Job Guarantee Abroad	With Access to Student Loan but without Job Guarantee Abroad	With Access to Student Loan and Job Guarantee Abroad
Jamaica	US\$ 1,221 *	US\$ 1,510 *	US\$ 1,803 *
US	US\$ 5,832	US\$ 10,041	US\$ 21,942

Source: Jamaica Nurse Labor Survey (2008)

* Exchange rate = 73 J\$/US\$

103. **There appeared to be the potential to further stimulate the demand for nursing programs in the ES CARICOM.** One of the rewards for investing in secondary education is that there exists a large pool of high school students meeting entry requirements. Out of the approximately 20,000 students graduating annually from high schools and meeting minimum qualifications for nurse training, only 1 out of 17 applied to nursing programs. While countries should promote diversity in their labor markets, the data suggested that there was room to increase the rate of qualified graduate students applying to nursing programs.

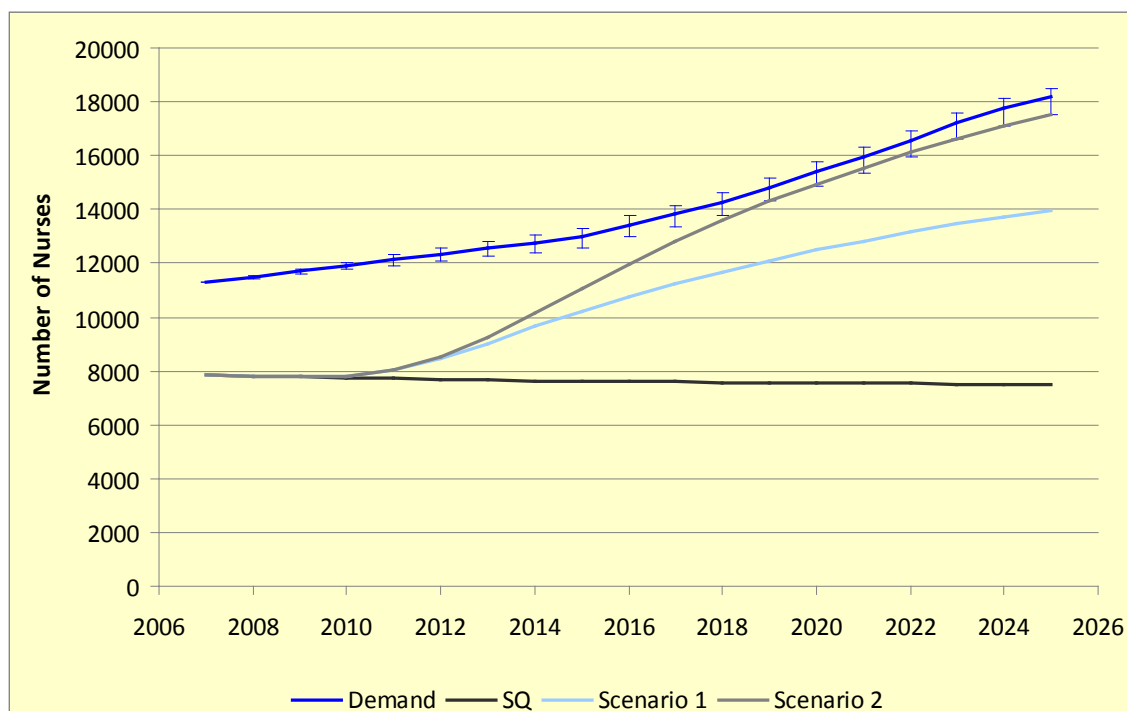
104. **Maximizing the completion rate and increasing intake by 50 percent would result in a 230 percent increase in the number of annual nurse graduates.** The combined measure of improving the completion rate from an estimated 55 percent to 85 percent and increasing the intake into pre-service training programs by 50 percent would result in a gradual increase in the annual number of graduates from 585 in 2007 to 1,340 in 2015 and constant thereafter. In terms of the nurse workforce, this related to an estimated increase of 2,400 nurses in 2015, and 6,200 in 2025. Achieving this increase, however, would require dramatically increasing the number of nurse tutors from currently 90 to 510. The analysis assumed attrition to remain the same. However, it should be noted that all efforts to increase training capacity by increasing the intake of students by 50 percent and improving completion rates would be offset if the attrition rates would increase from 8 percent to 18 percent.

105. **Maximizing the completion rate and increasing intake by 100 percent would yield a more than three-fold increase in the number of nurse graduates in an even shorter period of time.** The second scenario took on a more intense approach to increasing the number of nurse graduates. Again the completion rate would be improved to 85 percent, but the increase in intake into pre-service training programs would be 100 percent, resulting in an increase of annual graduates from 585 in 2007 to 1,800 in 2015 and constant thereafter. In terms of the nurse workforce, this related to an estimated increase of 3,100 nurses in 2015, and 9,600 in 2025. This effort would require a much greater increase in the number of nurse tutors from 90 to 680. Achievements in increasing the stock of nurses would however be negated if the attrition rate would increase from 8 percent to 24 percent.

106. **Efforts to increase the output of nurses (i.e. increase completion rate to 85 percent and increase intake of students by 50 percent and 100 percent) would still not be sufficient for the supply of nurses to meet the growing demand for nurses in**

the ES CARICOM. As presented earlier, if no policy change occurs, the gap between demand and supply would widen to 10,700 by 2025. An increase in the intake of 50 percent and improved completion rates would result in a significant reduction in the demand-supply mismatch, however, in 2025, there would remain a shortage of 3,500 nurses. And even in the best-case scenario where the intake would be increased by 100 percent, there would be still an estimated shortage of 600 nurses in 2025 (Figure 8).

Figure 8: Composite Projection of Supply and Demand in the Nurses Labor Market of ES CARICOM Countries in 2007-2025

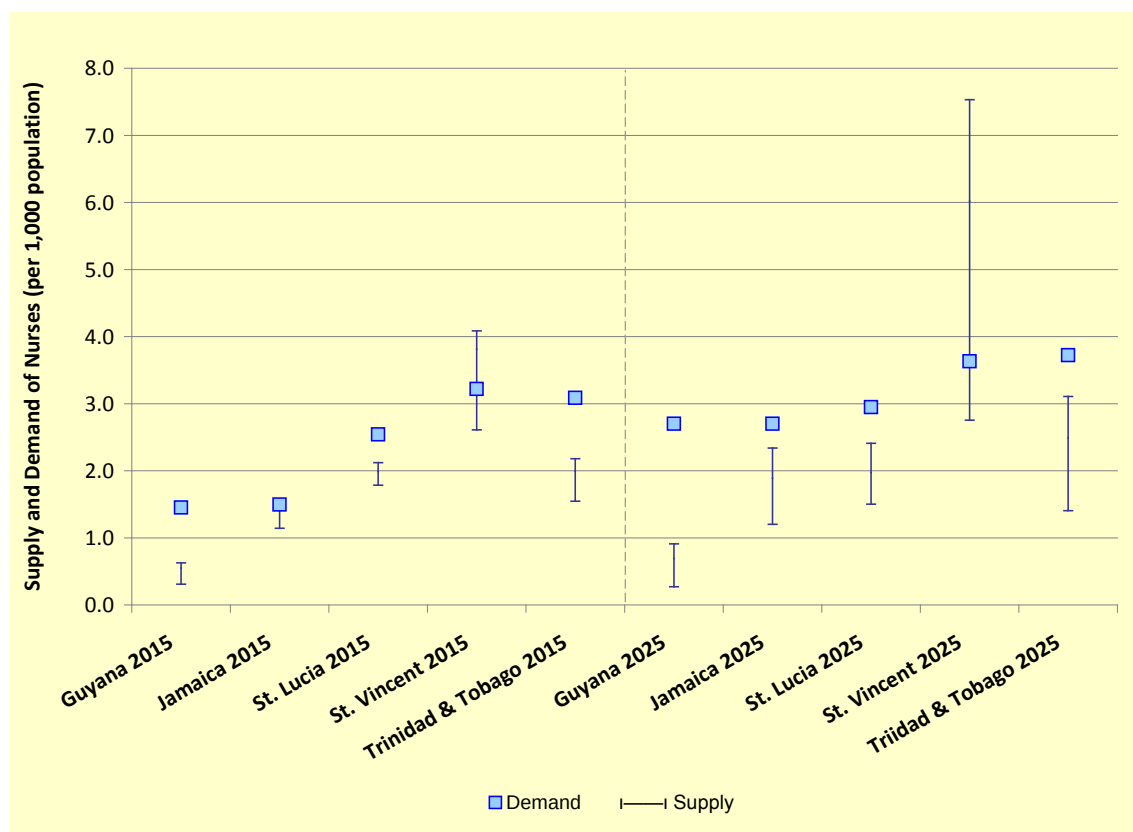


Source: Authors' calculations based on data from country case studies, the Canadian Nurses Association (2002), the United Nations Population Division (2007), and the World Bank's WDI and GDF databases (2007)

107. **With the exception of St. Vincent and the Grenadines, the scenario analysis suggests that no country would meet its demand for nurses, even with an increase of intake by 100 percent in 2025.** There is great promise that St. Vincent and the Grenadines would meet its demand for nurses even as early as 2015. By 2025, a 100 percent increase in intake and improvement of 85 percent completion rate, would result in a 50 percent surplus of nurses. In this scenario, St. Vincent and the Grenadines would have an estimated 7.5 nurses per 1,000 population; a rate much higher than the estimated current demand of 3.6 nurses per 1,000 population and similar to rates in high-income countries. In Jamaica, even though demand would not be completely met, efforts to increase training capacities and improve completion rates would result in a 75 percent decrease in the gap between demand for and supply of nurses. Unfortunately, the situation in Guyana did not look as promising. Even with an intense effort to increase

nurse output in 2025, there would be 0.9 nurses per 1,000 population; a rate far below the estimated current demand of 2.7 nurses per 1,000 population.

Figure 9: Projection of Supply and Demand in the Five Case Study Countries for 2015 and 2025



Note: Square boxes represent estimated demand. Line intervals show the estimated supply of nurses ranging from the base scenario to the best case scenario.

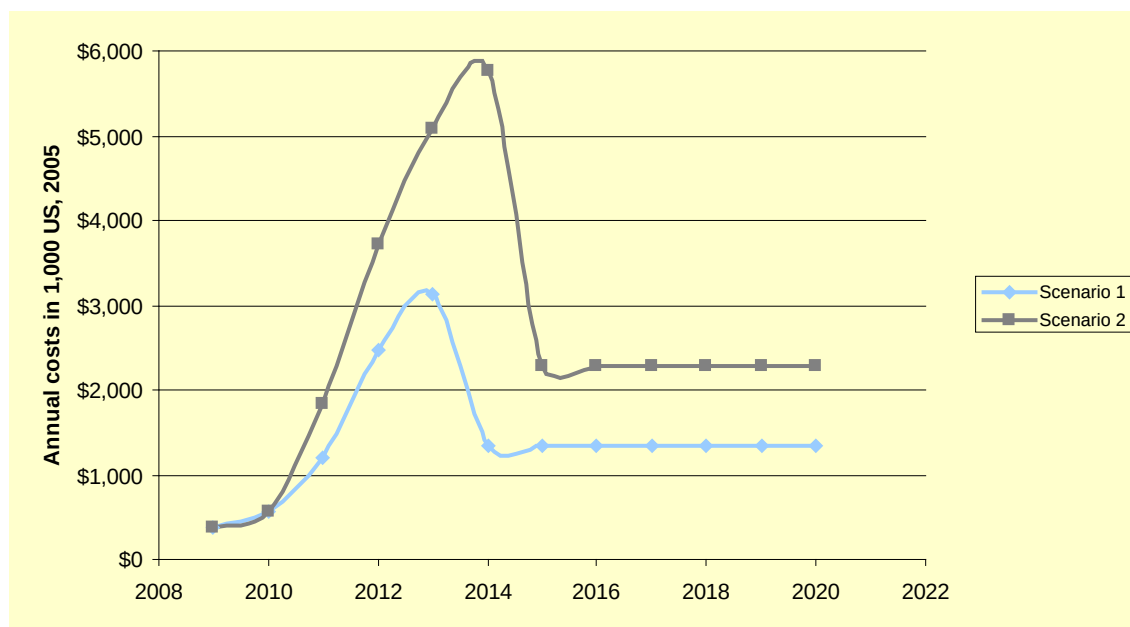
Source: Authors' calculations based on data from the country case studies, the Canadian Nurses Association (2002), the United Nations Population Division (2007), and the World Bank's WDI and GDF databases (2007)

Costs and Financing Solutions for an Expansion and Strengthening of Training Capacity

108. **For scenario 1, we estimated that the costs of expanding training capacity and improving completion rates between 2009 and 2020 would total about US\$ 17 million.** Approximately US\$ 3.5 million or 20 percent would be required for investment in infrastructure between 2010 and 2013. The remaining US\$ 14 million or 80 percent would be spent on recurrent costs to improve the quality and expansion of training capacity. Incremental recurrent costs would reach a steady state at a level of US\$ 1.3 million annually starting in year 2014 (Figure 10).

109. **For scenario 2, we estimated that the costs of expanding training capacity and improving completion rates over the same period would total roughly US\$ 31 million.** Approximately US\$ 10 million or 30 percent would be spent on capital costs between 2010 and 2013. The remaining US\$ 21 million or 70 percent would be spent on recurrent costs to improve the quality and expansion of training capacity. Incremental recurrent costs would level out at US\$ 2.3 million annually starting in year 2014.

Figure 10: Cost of Improving and Expanding Training Capacities According to Scenario 1 and 2



Source: authors' calculations based on country case study data, The Canadian Nurses Association's report "Planning for the Future: Nursing Human Resources Projections" (2002), and WDI and GDF database, World Bank (2007)

110. **To inform the design of a financing model for the expansion of training capacity, we estimated the costs and benefits from one nurse being trained in Jamaica.** The underlying method allowed distinguishing to whom costs and benefits accrue; however, if costs or benefits are incurred abroad, the method did not distinguish between persons, organizations, or governments unless it was the student herself. Estimates reflected the financing policies currently prevailing for pre-service training as well as the migrating patterns observed among Jamaican nurses.

111. **As benefits accrued to the student and economies abroad while costs were exclusively born by the government of Jamaica, nurse training in the ES CARICOM should be financed under a model that more fairly assigns costs to those who benefit.** Under current financing policies and migration patterns, we estimated that the student was the prime beneficiary amassing more than US\$ 400,000 over her life-time (Table 20). Economies abroad would have cost savings between US\$ 3,800 in the case of Canada and US\$ 26,000 in the case of the US. The government of Jamaica would face

net costs of US\$ 18,600. These would be the result of training costs totaling US\$ 20,400 and revenues accruing in the form of value added tax levied on the consumption of services and goods paid for with remittances. The observed pattern of costs and benefits suggested a tripartite financing model of nurse training in the ES CARICOM, including contributions from students, local, and foreign governments.

Table 20: Costs and Benefits and to Whom They Would Accrue from One Nurse Being Trained in Jamaica [in US\$ 1,000, 2005]

Costs			Benefits		Total
Item	US\$		Item	US\$	US\$
Student			Lifetime Salary	US\$ 433.2	US\$ 433.2
Jamaica	Training	US\$ 20.4	VAT on from spending of remittances	US\$ 1.8	[US\$ 18.6]
United States			Savings in training	US\$ 26.0	US\$ 26.0
United Kingdom			Savings in training	US\$ 22.7	US\$ 22.7
Canada			Savings in training	US\$ 3.8	US\$ 3.8

Source: Authors' calculations based on data from the country case studies, the UK Council of Deans (2008), 'Paying Taxes in Jamaica' (2008) and the World Bank's Doing Business Report (2008) as well as its WDI and GDF databases (2007)

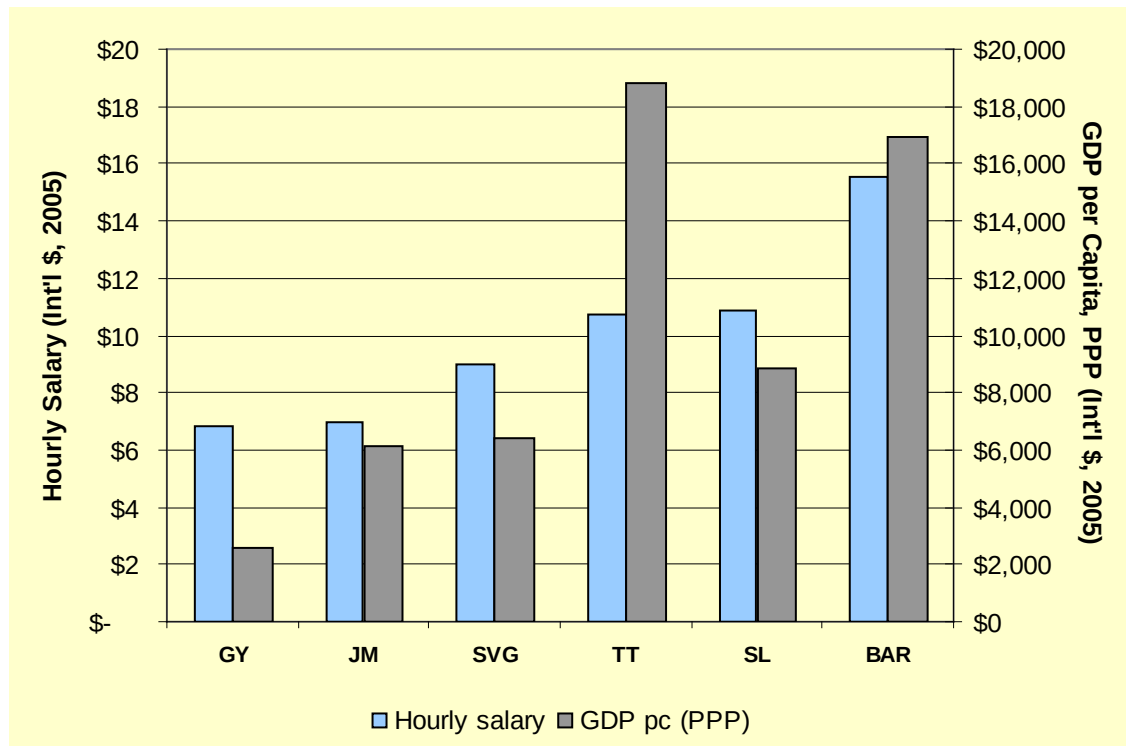
Impact of Full Implementation of CSME on Intra-regional Migration Flows

112. Removing barriers to entry in the context of the implementation of the CSME would likely result in an increase in intra-regional migratory flows of nurses. Looking forward, our focus has been on trends for the ES CARICOM as a whole. This perspective was well justified, given government's efforts to move towards free movement of skills, and in particular, nurses throughout the CSME. For the same reason, the outlook would not have been complete without exploring intra-regional effects of the planned, full-integration of the nurse labor market. As we discussed in Section F, once barriers to entry are removed, migratory flows tend to follow gradients of socio-economic development and income levels between countries. While these factors are not the only determinants of the force-field in which nurses take the decision where-to-work, information presented earlier as well as the literature suggested that differentials of these two factors across countries determine the direction as well as correlate with the scale of migratory net-flows. Therefore, a comparison of these two factors across the region should allow predictions about the direction and trends of migratory net-flows once entry barriers are removed.

113. Without a regional strategy to tackle the nurse shortages facing countries as well as an agreement that governs recruitment practices, nurse migratory flows will increase in the context of implementing the CSME and are likely to destabilize fragile supply-side equilibrium in some of the member countries. We estimated that differentials for both socio-economic development and wages were significant across CSME member countries, suggesting that the full integration of the domestic nurse labor markets will stabilize the fragile supply-side equilibriums in some countries while

threaten it in others. For example, it must be expected that Barbados will experience an increase in inflows from countries in the region while Guyana will face an increase in outflows. It will be therefore important that countries develop and adopt a regional strategy to tackle the shortage facing all of them and furthermore, that countries participating in the CSME agree on a framework that governs the recruitment of nurses prior to adjusting legal barriers to the free movement of nurses.

Figure 11: Hourly Salaries and GDP per Capita across Selected ES CARICOM Countries



Source: Authors' calculations based on data from country case studies, kindly provided by the government of Barbados and the World Bank's WDI and GDF databases (2007)

I. CONCLUSIONS AND RECOMMENDATIONS

In this final section, we summarize the major findings of the analyses with a focus on the challenges facing ES CARICOM countries and review potential entry points to stabilize supply. We conclude with a summary of current reform initiatives, a comprehensive review of policy options and specific recommendations.

Challenges

114. **The ES CARICOM faces growing shortages of nurses.** Unmet needs and excess demand is evidenced through low nurse to population ratios and persistently high levels of vacancies. In the absence of action on the part of ES CARICOM countries, these shortages will grow as the population ages and the needs for medical care increase.

115. **These nurse shortages have and will continue to have very tangible impacts that may compromise the region's ability to meet key health goals and its global competitiveness.** The lack of nurses in primary care will limit the delivery of patient education that has been shown to play a critical role in preventing chronic diseases such as diabetes. Furthermore, maintaining behavior change communication efforts to reduce the spread of HIV/AIDS as well as providing and monitoring ART treatment, all require ample human resources in the primary care health delivery system. In addition, the shortage of nurses is likely to impact the quality of health services, which, in turn, is likely to impact the ES CARICOM's attractiveness as a locale for international businesses as well as retirees.

116. **The current supply-side equilibrium could be easily destabilized.** Attrition rates, which appeared to be at a historic low, slightly exceed increment rates. This delicate balance could be easily destabilized through changes in the external environment. First, prime destination countries may relax entry regulations. As our analysis suggested, entry regulations in destination countries were the primary limiting factor of emigration from the ES CARICOM countries. At the same time, the populations of destination countries age and the demand for nurses is expected to increasingly outstrip supply. Relaxation of entry regulations by even a single large destination country, such as the US, could rapidly increase emigration levels thereby rapidly depleting the existing stock of nurses in the ES CARICOM. Second, with the full implementation of the CSME, increased levels of intra-regional migration along socio-economic and wage gradients could threaten the supply of nurses in some of the ES CARICOM countries.

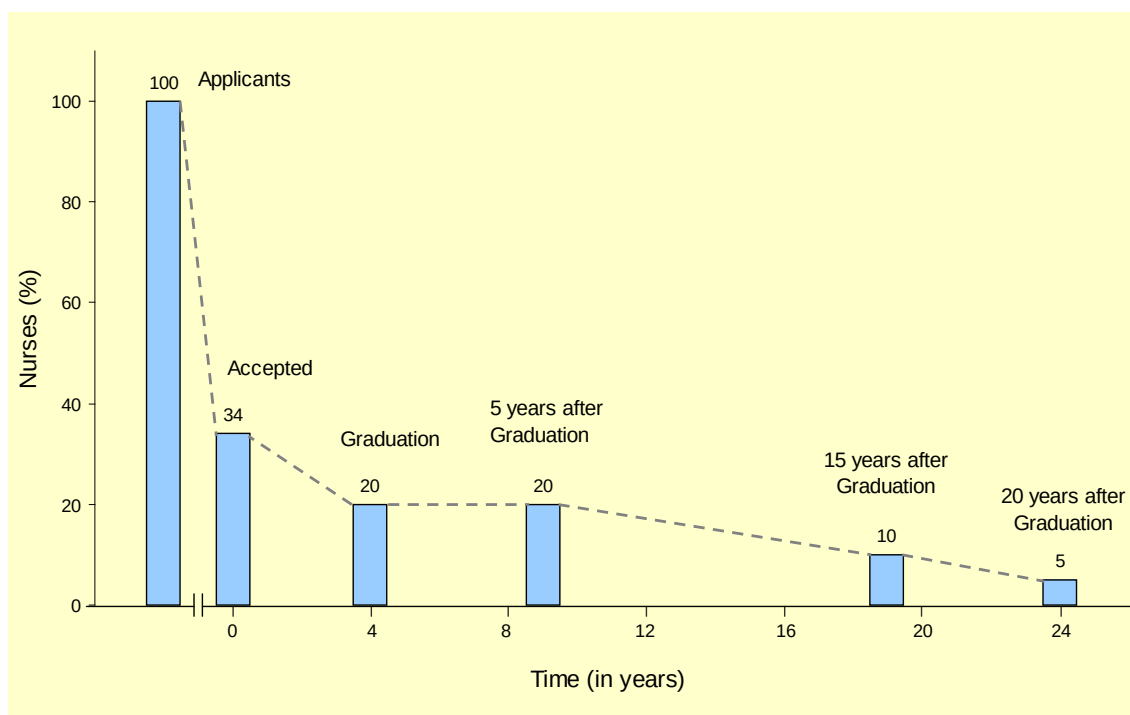
117. **Compounding the potential of increased outflows from the ES CARICOM, the Jamaica Nurse Survey showed high levels of dissatisfaction among nurses and a lack of knowledge about logistics and opportunities for migration.** We anticipate that continued or increased shortages have the ability to further dissatisfaction and to drive emigration, which in turn will exacerbate shortages. Furthermore, with network effects strengthened through continued improvements in global communication (e.g., internet, mobile phones, and increased participation of international nurse recruiting firms), we predict a more informed ES CARICOM nurse workforce who is more cognizant of their

migration options. In addition, global experiences suggest that recruitment firms, when anticipating business opportunities, have been highly capable of overcoming these information gaps.

Entry Points to Stabilize Supply

118. We estimated that approximately 95 percent of all potential human capital was lost in the nurse education and labor markets. For every 100 qualified applicants approximately 34 were accepted (Figure 12). Of these accepted students, in turn, only 20 graduated. For a short period of time (less in countries without bonded labor schemes) nearly all graduates worked in the local labor market and very few migrated; however, after 15 years only half of those original graduates remained working in the local labor market. After an additional 5 years, only about a quarter of the original graduates remained. Thus, of an initial pool of 100 qualified applicants, only 5 ES CARICOM trained nurses spent their full careers working as nurses in the local labor market. The dramatic nature of this reduction simultaneously represents the challenges and significant opportunities that exist.

Figure 12: Key Education Market Indicators



Source: Authors' calculations based on data from country case studies

Current Efforts

119. **Individual ES CARICOM countries are engaged in a variety of efforts to increase nurse supply, upgrade the skills of the nurse workforce, and improve nurse satisfaction.** We believe that these efforts, if implemented, are appropriate in the context of the specific challenges each individual country faces. However we also acknowledge that these plans (i) should be reviewed in light of new comprehensive information on specific scenarios and projections for nurse shortages in each country; (ii) should be assessed for their financial sustainability, especially where policies to scale up training programs exist; and (iii) should include viable strategies for increasing the number of nurse tutors, as they represent a potential binding constraint to both the capacity and the quality of nurse training programs. In addition, we believe that these plans should be examined to identify synergies and opportunities for collective regional action and, ideally, collated into a regional strategy for the ES CARICOM.

120. **Plans to improve the quality of training as well as upgrade the skill mix among nurses are important and necessary; however, these same plans may actually fuel nurse emigration.** Along with entry regulation barriers, challenges in passing qualifying examinations currently pose a major obstacle to nurse emigration. As shown earlier, ES CARICOM trained nurses on average have lower passing rates of the NCLEX than their US counterparts. As the quality of training improves, it is likely that passing rates will also improve. Therefore, as more ES CARICOM trained nurses perform well on these international qualifying exams and thus become more competitive in the global nurse labor market, the perception of high barriers to entry will be reduced. Likewise, initiatives to upgrade training programs will produce skills that are globally even more competitively sought after, such as nurses with Bachelor and Master degrees.

Policy Options to Reduce Shortages

Increase completion rates

121. **There are several strategies ES CARICOM countries can adopt to face the challenge of nurse shortages.** To meet long term demand for nurses, the ES CARICOM must adopt one or more of the following strategies: (i) Increase completion rates; (ii) increase nurse training capacity; (iii) manage migration; (iv) mobilize inactive supply; and (v) improve the allocation of existing human capital. As demonstrated in Figure 12, focusing on strategies 1, 2, and 3 are critical as they are the biggest areas of loss.

122. **We believe that addressing completion rates may be the best entry point to immediately bolster the workforce in the region.** With on average only 55 percent of students graduating in the region, drop outs represent a tremendous loss of potential human resources for health. Also, these high drop-out rates represent a low return to public investment in education. Because many schools in the region have substantially higher completion rates, we believe that region wide improvements in completion rates are possible.

123. **Based on the findings from studies in OECD countries, we found that countries can adopt strategies to effectively address the retention of students.** Such strategies include: (i) Establishing national monitoring systems on retention (e.g., conduct and compile the results of exit interviews for the purpose of understanding why students drop out); (ii) providing improved information for potential students on the program recognizing that many students enter a program and only later realize that a mismatch exists between their interests and the program; (iii) increasing the flexibility of the curriculum to accommodate different schedules and interests; (iv) providing guidance to staff on retention issues to ensure that staff detect and intervene early when students are at-risk of dropping out; (v) creating smaller learning groups and identifying peer mentors; and (vi) introducing the co-financing of study costs by students (Stolk et al 2007).

Increase nurse training capacity

124. **Given the challenges of managing migration discussed below, increasing nurse training capacities appears to be the most viable option for meeting long term demand for nurses in the ES CARICOM.** In other regions, such as Sub-Saharan Africa, it has been observed that the capacity of the education system is the binding constraint to scaling up the number of nurses (Preker et al 2008). Fortunately, our analysis showed that this is not necessarily the case in the ES CARICOM. Infrastructure constraints can be relaxed with additional finances. Clinical opportunities exist in substantial excess of what is utilized. However, creative strategies need to be used to address the insufficient numbers of nurse tutors. For example, ES CARICOM countries should consider promoting policies, many of them under GATS, such as (i) training nurse tutors outside the region; (ii) using in-service programs offered on-line; (iii) allowing for the temporary recruitment of nurse tutors from Canada, the UK and the US; and (iv) drawing on the diaspora to meet the needs for tutors with specific clinical skills and areas of expertise.

Manage migration

125. **The concept of managed migration is loosely defined.** In the realm of health, it attempts to reconcile two human rights - the right to freedom of movement and the right to access to health services. Likewise, migration of health professionals can be seen as having both a positive (e.g. remittances, funding flows, and returned nurses with enhanced skills) and a negative (e.g. skill shortages, increased costs, and negative impacts on services and quality of care) impact. Given this ambivalence, there appears to be substantial policy differences on efforts to manage migration, in the ES CARICOM as well as globally. While some countries have adopted a laissez-faire approach, others try to actively manage migration. Policy options to manage migration fall primarily into the two categories of unilateral and bi-, multi-lateral options (Table 21).

126. **Practical implementation of these ideas has in general been difficult, technically as well as politically.** Globally, well documented and evaluated systemic approaches are scarce. Regionally, a managed migration program emerged more recently and gathered support from several stakeholders. However, upon a recent review, initiatives remained largely driven by individual countries or individual organizations with little impact to date (Salmon 2007). Moreover, bilateral initiatives between source

and destination countries proved particularly difficult. A review of a prototype temporary migration scheme between the Caribbean and Canada concluded that “In hindsight, the magnitude of the changes recommended and the multiple agencies and interest that would be affected made it unlikely that such a radical intervention would be successful within governmental institutions that accept change slowly and incrementally” (Dawson 2005).

Table 21: Principle Policy Options to Manage Migration

Unilateral Options
Create barriers to migration, such as bonding schemes and citizenship taxes
Ease push factors
Train for export
Leverage expatriates
Turn brain drain into brain circulation
Lower barriers to entry for health professionals
Recruit from abroad
Bi- and Multi-lateral Options
Mutual recognition agreements (of health professional qualifications)
Agreements on recruitment
Agreements on twinning, staff exchange and educational support
Codes of Practice for international recruitment

Source: Kurowski (2004) and Buchan (2008)

127. However, the threat to the current fragile supply equilibrium in the ES CARICOM by the growing demand for nurses in prime destination countries warrants that all policy options to manage migration should be carefully revisited and explored. The following paragraphs are a first, crude attempt to do so.

128. Create Barriers to Migration: Many countries in the region have already adopted bonding schemes. The Jamaican Nurse Survey demonstrated that they are likely to be effective during the period of bonding. Similarly, some countries outside of the ES CARICOM have imposed a tax on its citizens living abroad or asked them to reimburse the government for the loss of investment in their education (Dolvo 2005). They did this in hopes to potentially deter would-be migrants as well as to raise revenues. The effectiveness of these strategies is yet to be determined. Alternative strategies available to other countries (such as training in local languages to increase the costs of migration) are not viable in the ES CARICOM.

129. Ease push factors: The literature suggests that beyond increasing wages to decrease the differential between source and destination countries, there are important professional, social, economic, and political factors that if changed can limit migration. While a number of countries are already engaged in refurbishing facilities and offering further in-service training opportunities, additional opportunities should be explored.

130. **Train for export:** Globally and regionally, some countries explicitly endorsed migration and scaled up their training capacities to ‘train for export’. Alternatively, the literature suggests that if barriers to entry into the nurse education market are lowered, the same results can be achieved through private sector investment. The literature further suggests that training for export eases shortages in source countries (Clemens et al 2007).

131. **Leverage expatriates:** Multilateral organizations have developed tools to help leverage Diaspora efforts to support their home countries (Kurowski 2004). Given the high ratio between ES CARICOM nurses abroad and at home, the ES CARICOM is well positioned to try, for example, to use expatriate volunteers to support training systems.

132. **Turn brain drain into brain circulation:** Overall, relocation programs, such as the Reintegration Program of Qualified African Nationals have had little success (Marchal & Kegels 2003). However, the Jamaica Nurse Survey indicated that 79 percent of migrant nurses trained in the ES CARICOM intend to return home. Though only half of them intended to work as nurses at home, creating the opportunity for these individuals to return and work is an opportunity that should be explored.

133. **Lower barriers to entry for health professionals:** The full implementation of the CSME requires abolishing all barriers to entry for nurses. Likewise, barriers could be lowered for health professionals from outside the CSME. Once barriers are lowered, it could be expected that immigration sets in from countries with lower levels of socio-economic development and wages.

134. **Recruit from abroad:** Given the global shortage of nurses and, in particular, ethical considerations involved in recruiting nurses from lower income countries which also experience shortages, we do not recommend the recruitment of foreign nurses as a mainstay for meeting demand for nurses. However, recruitment of foreign nurses, including nurses from OECD countries, may be used selectively to bring into the ES CARICOM highly specialized nurses, in particular nurse tutors. ES CARICOM countries have indeed begun recruiting nurses and nurse tutors from countries such as Cuba, Nigeria, the Philippines, and India. Lessons should be learned from both the successes and mistakes of these recruiting efforts in order for ES CARICOM countries to gain the most out of these efforts.

135. **Mutual recognition agreements:** Mutual recognition agreements focus on ensuring that an individual nurse meets minimum, mutually agreed, educational and professional standards. They are designed to facilitate the mobility of professionals in regulated professions such as nurses. Mutual recognition has been achieved among the majority of ES CARICOM countries and with the UK. Agreements may be expanded to countries that may serve as potential sources of migrants to the ES CARICOM.

136. **Agreements on recruitment:** Agreements on recruitment, normally between governments, set out approaches to facilitate the international flow of nurses. They may cover specifics such as numbers and time periods or may be broad based “enabling” mechanisms. Agreements on recruitment may have the advantage of allowing the monitoring of migratory flows and, subject to their design, crowding out individual initiatives. As discussed above, CARICOM attempted to develop a prototype temporary migration scheme with Canada, however, the process has become stalled.

137. **Agreements on twinning, staff exchange, and educational support:** Such agreements, between governments and/or individual organizations, govern primarily the structured temporary movement of staff based on needs and career development opportunities, including funding related to temporary movement. In the ES CARICOM, there is some experience with such approaches, such as an agreement between Grenada and Aruba as well as several ES CARICOM countries and Cuba.

138. **Codes of practice:** Codes of practice cover principles and policies to facilitate effective international recruitment. They also set out some ethical requirements. For example, to minimize the negative impact of migration, there should be no active recruitment of designated countries. To our knowledge, ES CARICOM countries have no immediate experience with this approach. As we discussed earlier, the full implementation of the CSME is likely to result in increased migration of nurses within the region. While supporting the rights of nurses to migrate within the region, there is also a need to limit aggressive recruitment of nurses from poorer countries. Consequently, a regional approach to govern recruitment should be explored.

Other policy options

139. **Mobilize inactive supply.** Although mobilizing the inactive supply has been an effective means of meeting health worker shortages in other countries, our analysis presented in Section E showed that mobilizing the inactive supply of nurses represented the least viable of the policy options (Vujicic & Evans 2005, OECD 2007). Survey data suggested that among non-migrants almost all worked, and all within the field of nursing.

140. **Improve the allocation of existing human capital.** As we demonstrated in Section E, the majority of nurses worked in secondary and tertiary settings. In order to more effectively confront emergent chronic conditions in the region, more nurses need to be trained and deployed within primary care settings. Our research showed that countries performing best in this regard were the ones that have established specific primary care nurse cadres, and were monitoring and actively recruiting for these positions.

141. **Shifting tasks to lower skilled workers.** To date the literature on task shifting has largely focused on using task shifting as a strategy to reduce physician workload, especially in the context of the HIV/AIDS pandemic. Although some HIV/AIDS related tasks have been identified, there is little evidence and experience with task shifting from nurses to lower skilled health worker in more general. However, with the demographic and epidemiological shift occurring in the ES CARICOM, the potential for shifting tasks from nurses to lower skilled workers or to patients themselves will be important to keep in mind as part of a comprehensive human resource strategy (WHO 2008).

Financing the Strengthening and Scaling-up of Nurse Training

142. **Strengthening and scaling-up nurse training may require adopting tripartite financing arrangements.** Strengthening and scaling-up nurse training requires substantial financial outlays both for capital and operating expenses. This calls into question the high rate of subsidization of the current system, in particular, in the face of a deteriorating global financial and economic environment. Survey data indicated that

nurses reported a willingness to pay a significant share of their training costs, in particular, if low interest loans were available. In addition, key informants indicated that the current level of subsidization may actually lend itself to some students undervaluing their training who are therefore less likely to complete their studies. Moreover, migratory outflows represent direct cost-savings for the destination countries. Hence, a tripartite financing model with contributions from local and destination country governments as well as students appears most sustainable and just.

143. The impact of new sources of funding should be leveraged by introducing innovative financing arrangements that facilitate private sector investment. Historically, ES CARICOM governments have both financed and provided nurse training. Exploring new sources of funding to expand nurse training capacity should include options that promote adopting new funding arrangements that bolster private investment. As discussed before, evidence from Africa suggested that diversification in the education market for health professionals helped to maintain local stocks in the presence of substantial migratory outflows (Clements 2007). Steps in this direction have been taken by some of the ES CARICOM governments as they reimburse the tuition that students pay that are enrolled in private institutions. Further opening up the education market for nurses in the ES CARICOM could, for example, be facilitated by pooling resources and buying rather than providing services.

Recommendations

144. As noted earlier, all case study countries were engaged in activities and/or had plans to improve the quality of nurse education and increase the number of nurses trained. Consultations with individual countries should take place to assess these plans. In the course of our research, we learned that monitoring and evaluation data of the nurse labor and education markets were scarce. Given the potential fragility of the ES CARICOM nurse labor market, it is critical that countries more closely monitor nurse labor market (e.g. vacancy levels, skill-mix, and attrition including migration) and nurse education market (e.g. student to tutor ratios, intake rates, and completion rates).

145. Ultimately, we believe that a false dichotomy exists between choosing to focus on increasing nurse training capacity versus focusing on managing migration; in fact, both must be done jointly and immediately. If the ES CARICOM is to address current and future nurse shortages, be increasingly protected against a large outflow of nurses and simultaneously recognize an individual's right to freedom of movement, the ES CARICOM must both increase the number of nurse graduates and manage migration.

146. A regional effort to strengthen and scale-up nurse training is critical to success. The scarcity of tutors, the intra-regional distribution of health care capacity and the limited number of institutions offering higher degrees warrant regional coordination. Ideally, country initiatives would be collated into a single, regional strategy. Moreover, the implementation of the CSME and associated increases in intra-regional migration requires a coordinated approach to govern the nurse education and labor markets.

147. **Managing migrations requires reaching out to destination countries, the goal being to establish and agree on annual flows, cost-sharing arrangements for necessary investment in nurse training capacity and technical support. Such agreements would be in the best interests of both source and destination countries, as they make flows more transparent and predictable and facilitate workforce monitoring and planning on both ends. It would help destination countries that struggle to achieve self-sufficiency in reconciling immigration policies with foreign policies. However, as for efforts to strengthen and scale-up training capacity, only a regional initiative is likely to succeed. Given the discrepancies between the sizes of workforces in the ES CARICOM vis-à-vis Canada, the UK, and the US, only a joined approach of ES CARICOM countries would create a win-win situation. More recent experiences of attempts to manage migration suggest that small scale initiatives do not sustain the interest of destination countries (Dawson 2006).**

148. **Effort to strengthen and scale-up training capacity and manage migration should be combined with financing reforms that more fairly assign costs to those who benefit. A tripartite financing model appeared to be most appropriate with contributions from governments in the ES CARICOM, from governments in destination countries and students themselves.**

149. **Collectively, the discussed actions have the potential to stabilize the delicate demand and supply equilibrium of nurses in the ES CARICOM. Swift corrective measures are of utmost importance.**

THE NURSE LABOR AND EDUCATION MARKETS IN THE ENGLISH-SPEAKING CARICOM: ISSUES AND OPTIONS FOR REFORM

Human Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region

June 2009

SUPPLEMENT TO MAIN REPORT: ANNEXES

Annex A: Statistical Data
Annex B: Methodology
Annex C: ES CARICOM Case Country Studies
Annex D: OECD Case Country Studies
Annex E: Jamaican Nurse Labor Survey

ANNEX A: STATISTICAL DATA

Introduction

The statistical data is presented in this annex as a series of Tables. The initial series of Tables (Table A1 to Table A8) contain the core statistical data depicted in the figures presented in the main report. These Tables are cross referenced with their respective figures. Some of the Tables (Table A9 to Table A16) also provide detailed statistical data from which statements and conclusions in the main report were inferred. These Tables, along with the Tables in the main report and in the ‘Jamaican Nurse Labor Survey’ section, contain the core figures underlying the arguments and recommendations made in the main report. The Tables presented in this annex also supplement the data presented in the Tables and Figures of the main report.

Table A1: GDP per Capita PPP, Supply of nurses per 1,000 population, and Demand per 1,000 population in the Case Study Countries

Country	GDP per capita, PPP (constant int.\$ 2005)	Supply (per 1000 population)	Demand (per 1000 population)
Guyana	\$3,278	0.55	1.18
Jamaica	\$7,189	1.06	1.43
St. Lucia	\$9,335	2.2	2.41
St. Vincent and the Grenadines	\$6,798	2.55	2.96
Trinidad and Tobago	\$15,387	1.79	2.73

Source: authors’ calculations based on country case study data and WDI and GDF database, World Bank (2007)

Note: calculations for Nurse per 1,000 population includes all Registered Nurses and Midwives

Note 2: The Table provides data for Figure 1 and Figure 2 of the report.

Table A2: Inflow of ES CARICOM Nurses to Canada, the UK, and the USA in 2002-2006

Country	2002	2003	2004	2005	2006
Canada	31	80	17	15	27
UK	248	208	397	352	
USA	–	–	185	166	144

Source: authors’ calculations based on Nursing Council Licensure Examination (2002-2006), Nursing and Midwifery Council (2005), and Canadian Institute for Health Information (2006)

Note: The Table provides data for Figure 3 of the report.

Table A3: GDP per capita PPP, Comparative GDP Per Capita as a Percentage of the GDP of Barbados, Flow Rates to the US, Hourly Salary, and Wage ratios

Country	GDP pc, PPP (2005)	GDP pc (PPP) % of BAR	Flow / Supply Ratio	GDP pc, PPP source country /GDP pc, PPP, US	Hourly salary	Wage ratio
Barbados	\$16,957	100.0%	0.3%	40.6%	\$15.56	81%
Belize	\$6,253	36.9%	2.6%	15.0%	–	–
Dominica	\$7,229	42.6%	2.8%	17.3%	–	–
Grenada	\$7,052	41.6%	1.6%	16.9%	–	–
Guyana	\$2,563	15.1%	5.4%	6.1%	\$6.86	36%
Jamaica	\$6,112	36.0%	3.9%	14.6%	\$6.98	36%
St. Lucia	\$8,879	52.4%	2.4%	21.2%	\$10.86	57%
St. Vincent and the Grenadines	\$6,431	37.9%	2.3%	15.4%	\$9.01	47%
Trinidad and Tobago	\$18,818	111.0%	0.5%	45.0%	\$10.71	56%

Source: authors' calculations based on country case study data, US Census data and WDI and GDF database, World Bank (2007)

Note: The Table provides data for Figure 4 and Figure 5 of the report.

Table A4: US NCLEX Pass Rates by Country of Training in 2000-2005

Countries	US NCLEX pass rates
Guyana	42.3%
St. Lucia	43.2%
Barbados	47.1%
Grenada	50.0%
St. Vincent and the Grenadines	52.6%
Dominica	55.6%
Trinidad and Tobago	56.5%
CARICOM	58.5%
Belize	65.4%
Jamaica	65.7%
USA	80.1%

Source: authors' calculations based on Nursing Council Licensure Examination (2000-2005)

Note: The Table provides data for Figure 6 of the report.

Table A5: Composite Projections of Demand, Base Case Scenario, Scenario 1, and Scenario 2 in the Nurses Labor Market of ES CARICOM Countries in 2007-2025

Year	Demand	Base Case Scenario	Scenario 1	Scenario 2
2007	11270	7829	7829	7829
2008	11485	7796	7796	7796
2009	11699	7765	7765	7666
2010	11913	7736	7780	7496
2011	12124	7710	8027	7481
2012	12334	7686	8539	7574
2013	12545	7664	9265	7728
2014	12755	7643	10147	7870
2015	12966	7625	11070	7890
2016	13434	7607	11979	7807
2017	13810	7591	12816	7739
2018	14255	7577	13587	7684
2019	14821	7563	14297	7638
2020	15385	7551	14952	7600
2021	15922	7539	15554	7570
2022	16561	7528	16109	7545
2023	17202	7519	16620	7524
2024	17766	7510	17091	7507
2025	18159	7501	17524	7493

Source: Authors' calculations based on country case study data, the Canadian Nurses Association's report "Planning for the Future: Nursing Human Resources Projections" (2002), United Nations Population Division (2007), and WDI and GDF database, World Bank (2007)

Note: 'Demand', 'Base Case Scenario', 'Scenario 1', 'Scenario 2', and 'Scenario 3' are in No. of Nurses.

Note2: The Table provides data for Figure 7 and Figure 8 of the report.

Table A6: Projection of Supply and Demand (per 1,000 population) in the Nurses Labor Market of Five Case Study Countries in 2015 and 2025

Country	Demand 2015	Supply 2015	Demand 2025	Supply 2025
Guyana	1.5	0.5	2.7	0.7
Jamaica	1.5	1.4	2.7	1.9
Saint Lucia	2.5	2.0	2.9	2.0
Saint Vincent & Grenadines	3.2	3.8	3.6	6.0
Trinidad & Tobago	3.1	2.0	3.7	2.5

Source: authors' calculations based on country case study data, The Canadian Nurses Association's report "Planning for the Future: Nursing Human Resources Projections" (2002), United Nations Population Division (2007), and WDI and GDF database, World Bank (2007)

Note: The Table provides data for Figure 9 of the report.

Table A7: Cost of Improving and Expanding Training Capacities According to Scenario 1 and 2

Year	Scenario 1 (in 1,000 US\$ 2005)	Scenario 2 (in 1,000 US\$ 2005)
2009	\$380	\$380
2010	\$562	\$562
2011	\$1,195	\$1,828
2012	\$2,461	\$3,728
2013	\$3,140	\$5,085
2014	\$1,333	\$5,772
2015	\$1,333	\$2,286
2016	\$1,333	\$2,286
2017	\$1,333	\$2,286
2018	\$1,333	\$2,286
2019	\$1,333	\$2,286
2020	\$1,333	\$2,286

Source: authors' calculations based on country case study data, The Canadian Nurses Association's report "Planning for the Future: Nursing Human Resources Projections" (2002), and WDI and GDF database, World Bank (2007)

Note: The Table provides data for Figure 10 of the report.

Table A8: Hourly Salary and GDP per Capita PPP across Selected ES CARICOM Countries

Countries	Hourly salary	GDP pc, PPP (current int'l \$) (2005)
Guyana	\$6.86	\$2,563
Jamaica	\$6.98	\$6,112
St. Vincent and the Grenadines	\$9.01	\$6,431
Trinidad and Tobago	\$10.71	\$18,818
St. Lucia	\$10.86	\$8,879
Barbados	\$15.56	\$16,957

Source: authors' calculations based on country case study data and WDI and GDF database, World Bank (2007)

Note: The Table provides data for Figure 11 of the report.

Table A9: Nurse Education Market Ratios (in Percent)

	2004	2005	2006	Average 04/06
Applicants / Qualified High School Students	14.6%	15.1%	19.1%	16.2%
Intake / Qualified High School Students	5.2%	4.0%	7.3%	5.7%
Intake / Applicants	38.8%	26.2%	37.5%	34.2%
Output / Intake	–	–	–	55.8%

Source: authors' calculations based on country case study data

Table A10: Output/ Input Ratios in the Nurse Education Market for the years 2004-2006

Country	Intake	Output	Output/Input Ratio
GY	246	115	47%
JM	101	69	68%
SL	74	65	88%
SVG	200	89	45%
TT	457	263	58%
Total	1078	601	56%

Source: authors' calculations based on country case study data

Table A11: Supply, Demand, and Vacancies in the Nurse Labor Market

	GY	JM	SL	SVG	TT	Total CSC	ES CARICOM
Supply	405	2,835	365	305	2,380	6,290	7,995
Vacancies	470	970	35	50	1,240	2,765	3,510
Demand	875	3,805	400	355	3,620	9,055	11,505
Supply (per 1,000 population)	0.55	1.06	2.20	2.55	1.79	1.25	–
Demand (per 1,000 population)	1.18	1.43	2.41	2.96	2.73	1.80	–

Source: authors' calculations based on country case study data and WDI and GDF database, World Bank (2007)

Table A12: Active Supply, Skill Mix, and Nurses per 1000 Population in Case Study Countries

	GY	JM	SL	SVG	TT	Total
	No. of Nurses (%)	No. of Nurses (%)	No. of Nurses (%)	No. of Nurses (%)	No. of Nurses (%)	No. of Nurses (%)
Care, secondary and tertiary level	275 (67.9%)	1,895 (66.8%)	245 (67.1%)	185 (60.7%)	1,910 (80.3%)	4,510 (71.7%)
Care, primary level incl. community	20 (4.9%)	240 (8.5%)	55 (15.1%)	45 (14.8%)	215 (9.0%)	575 (9.1%)
Supervision, Administration, Management	90 (22.2%)	395 (13.9%)	60 (16.4%)	55 (18.0%)	215 (9.0%)	815 (13.0%)
Education	20 (4.9%)	70 (2.5%)	5 (1.4%)	15 (4.9%)	40 (1.7%)	150 (2.4%)
Others	0 (0.0%)	235 (8.3%)	0 (0.0%)	5 (1.6%)	0 (0.0%)	240 (3.8%)
Total	405 (100.0%)	2,835 (100.0%)	365 (100.0%)	305 (100.0%)	2,380 (100.0%)	6,290 (100.0%)
Nurses per 1,000 population, care	0.40	0.80	1.81	1.92	1.60	1.01
Nurse per 1,000 population, total	0.55	1.06	2.20	2.55	1.79	1.25

Source: authors' calculations based on country case study data

Table A13: Vacancies in the Nurse Labor Market

	GY	JM	SL	SVG	TT	Total
	Vacancies (%)	Vacancies (%)	Vacancies (%)	Vacancies (%)	Vacancies (%)	Vacancies (%)
Care, secondary and tertiary level, general nurses (A)	220 (46.8%)	–	–	–	765 (61.7%)	–
Care, secondary and tertiary level, specialized nurses (B)	145 (30.9%)	–	–	–	75 (6.0%)	–
Subtotal A+B	365 (77.7%)	–	25 (71.4%)	30 (60.0%)	840 (67.7%)	–
Supervision, Administration, Management (C)	60 (12.8%)	–	15 (42.9%)	5 (10.0%)	250 (20.2%)	–
Subtotal A+B+C	425 (90.4%)	875 (90.2%)	35 (100.0%)	35 (70.0%)	1090 (87.9%)	2460 (89.0%)
Care, primary level	25 (5.3%)	90 (9.3%)	0 (0.0%)	10 (20.0%)	90 (7.3%)	215 (7.8%)
Education	20 (4.3%)	5 (0.5%)	0 (0.0%)	5 (10.0%)	60 (4.8%)	90 (3.3%)
Others	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	470 (100.0%)	970 (100.0%)	35 (100.0%)	50 (100.0%)	1240 (100.0%)	2765 (100.0%)
Vacancy ratio	53.7%	25.5%	8.8%	14.1%	34.3%	30.5%
Vacancies per 1,000 population	0.64	0.36	0.21	0.42	0.93	0.55

Source: authors' calculations based on country case study data

Table A14: Attrition rate, number of Nurses lost through Retirement, Death & Disability, and Migration

	GY No. of Nurses (%)	JM No. of Nurses (%)	SL No. of Nurses (%)	SVG No. of Nurses (%)	Total No. of Nurses (%)
Retirement	7 (9.3%)	14 (7.7%)	10 (35.7%)	6 (28.6%)	37 (12.1%)
Death & Disability	1 (1.3%)	3 (1.6%)	0 (0.0%)	1 (4.8%)	5 (1.6%)
Migration	55 (73.3%)	0 (0.0%)	4 (14.3%)	0 (0.0%)	59 (19.2%)
Not specified	12 (16.0%)	166 (90.7%)	14 (50.0%)	14 (66.7%)	206 (67.1%)
Total	75 (100.0%)	183 (100.0%)	28 (100.0%)	21 (100.0%)	307 (100.0%)
Attrition rate	18.5%	6.5%	7.7%	6.9%	7.9%

Source: authors' calculations based on country case study data

Table A15: Increments for the year 2006, 2004-2006, and 2002-2006 data averages

	GY	JM	SL	SVG	TT	Total CSC	ES CARICOM
Population (2005)	739,472	2,654,500	164,791	119,137	1,323,722	5,001,622	6,218,189
2006							
Net Increment (Pre-service Program in General Nursing)	33	245	21	24	146	469	585
Net Increment (pre-service in GN/Total Established Posts)*	8%	9%	6%	8%	6%	5%	—
Net Increment (Pre-service Program other**)	0	0	0	0	25	25	35
Net Increment (pre-service in others/Total Established Posts)*	0%	0%	0%	0%	1%	0%	—
Gross Increment (pre+in-service Programs)***	48	296	21	24	—	—	—
2004-2006 data average							
% Gross Increment (pre+in-service Programs)***	5%	8%	5%	6%	—	—	—
2002-2006 data average							
Net Increment/Intake Ratio (for Pre- service program)	51%	54%	88%	30%	58%	55%	
Qualified Applicants/Intake Ratio (for Pre- service program, public)	66%		56%	130%	41%	75%	
Qualified High School Students (for Pre-service program)	2255	4697	810	695	6486	14943	18606

Source: authors' calculations based on country case study data and WDI and GDF database, World Bank (2007)

* Total Established Posts= Total Workforce + Vacancies

** Pre-Service Program Other: Only available in TT and it is called Associate Degree of Science in Psychiatric Nursing

*** No information on the number of graduates from in-service diploma and certificate programs

Table A16: Workforce, Vacancy rates, and Output in the Nurse Labor Market

Country	Population (2005)	Workforce	Vacancies	Vacancy Rate	Pre-Service Program: Output	Output/Total Established Posts
Guyana	739,472	405	470	0.54	33	8.1%
Jamaica	2,654,500	2835	970	0.25	245	8.6%
St. Lucia	164,791	365	35	0.09	21	5.8%
St. Vincent and the Grenadines	119,137	305	50	0.14	24	7.9%
Trinidad and Tobago	1,323,722	2380	1,240	0.34	146	6.1%
Total (5 case study countries)	5,001,622	6290	2,765	0.31	469	7.5%

Source: authors' calculations based on country case study data and WDI and GDF database, World Bank (2007)

ANNEX B: METHODOLOGY ANNEX

Introduction

150. In this annex, we provide a detailed description of methodology that we used for the analyses in the report. Research efforts included five main streams of work: Case studies in the ES CARICOM; case studies in selected OECD countries; a nurse labor survey among graduates from Jamaica; supply and demand projections for the ES CARICOM, and literature reviews (Table1 of the report).

151.

152. **Table B1: Main Research Activities**

Stream of Work	Primary Sources of Information	Purpose
Case studies of ES CARICOM countries (Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines; and Trinidad and Tobago)	Data collected from MOH, nursing schools, hospital; census	Determine characteristics and trends of the nurse labor and education market of the English-speaking CARICOM
Case studies of selected OECD countries (Canada, U.K., USA)	Census, nursing registration, and nurse examination data	Determine stocks, flows and driving forces of migratory flows from the ES CARICOM to main destination countries
Jamaica Nurse Survey	Survey among Jamaican nurse graduates (1980, 1990, 2000, 2005)	Identify and determine the role of factors driving labor and education market behaviors of ES CARICOM nurses
Supply and demand projections for the ES CARICOM	Case studies of ES CARICOM, Jamaica Nurse Survey, demographic projections (UN Population Division 2006), and Canadian nurse utilization patterns (Canadian Nurses Association 2002)	Project supply and demand for nurses in the ES CARICOM and carry out scenario analyses

Structure of Methodology Annex

The following section, **ES CARICOM Case Country Studies**, provides methods applied to analyze the current situation of the ES CARICOM nurse labor and education market. Sections E, F and G of the main report present some of the findings from this study.

It is followed by a section, **OECD Case Country Studies**, which allowed us to better understand the ES CARICOM nurse labor market and its interactions with the global nurse labor market. The findings of this section can be found in Section F and H of the main report.

The Jamaican Nurse Labor and Education Survey Section describes the methodology we applied to identify the factors that determined labor and education market behaviors

of ES CARICOM nurses. Some of the findings derived from this survey are presented in Section E, F and G of the main report.

The Supply and Demand Projections for the ES CARICOM Section presents methodology to project the nurse labor market. Section H of the main report provides the major findings of the analyses.

ES CARICOM Case Country Studies

We examined the nurse labor and education markets of five ES CARICOM countries: Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. We worked in close collaboration with Ministries of Health, Ministries of Education, nursing schools and councils, and public and private health care facilities. Primary data was collected by in-country consultants between May and December 2007. The information collected in these case country studies served three purposes: 1) to provide a comprehensive picture of the ES CARICOM nurse labor and education markets; 2) to compile contact information to be used to conduct a nurse labor survey; and 3) for analysis of forecasting the supply of and demand for nurses in the ES CARICOM nurse labor market.

Nurse Labor Market

In order to fully understand the nurse labor markets of the five case study countries, we examined the supply of and demand for nurses in the labor market. In particular, we analyzed the active supply of nurses, increments (which will be discussed in greater detail in the nurse education market section), attrition, and vacancies. Since there was limited publicly available data, we collected primary data. Data was collected from 1) Human Resource departments and Head Offices of Nursing Divisions of Ministries of Health, universities, and hospitals at both the national and regional levels; 2) interviews with Ministries of Health, universities, and hospital officials; and 3) government and hospital records.

We first identified specific nurse cadres. Nurse cadres were categorized by their specific roles and specialties in the health care delivery system (e.g., staff nurse, charge nurse, public health nurse, or nurse tutor). It should be noted that nursing titles, positions, and job descriptions differ in each country. Therefore, identifying and outlining nurse cadres were important for conducting cross-country analyses. We developed a list of cadres for each case study country that included information on the perquisite requirements of educational and occupational experience needed for each cadre, and the common work setting of each cadre (e.g., primary care, secondary care, tertiary care, education, and administration).

In terms of the active supply, we collected data on indicators such as the total established nurse positions (number of “budgeted” positions) and number of filled positions. We also collected data on the inflow of foreign nurses into the local nurse labor market. This data was collected by cadre, type of academic and/or professional degree, and sector of employment (public or private). In terms of attrition, we collected data on indicators such as the total annual attrition from the nurse labor market broken down by irreversible

(death and disability) and reversible (retirement, resignation, migration, and other causes) factors. This data was collected by cadre. In terms of vacancies, we collected data on indicators such as the number of unfilled vacancies (number of budgeted positions minus number of filled positions). This data was collected by cadre, type of academic and/or professional degree, and sector of employment (public or private). The abovementioned data was collected for 2002-2007. In cases where data was not available for that time period, it was collected up to the last available year. It should be noted that estimates of the active supply, attrition, and vacancies may be understated since information was not collected from all hospitals (particularly data collection from private hospitals was limited), data on attrition was not available or up to date from all hospital nurse registries, and definitions of vacancies were inconsistent.

We examined the different salary ranges for nurse cadres in the public sector in order to analyze wage differentials between the five case study countries. We also analyzed data on the wage differentials between non-migrant ES CARICOM trained nurses, migrant ES CARICOM trained nurses and OECD trained nurses. Data was collected based on salary ranges and did not include benefits. In order to fully understand the net income of RNs, information on income tax and other expenses (e.g., social security and national insurance scheme) was collected. It should be noted that data on income tax and other expenses was limited to Jamaica and St. Vincent and the Grenadines.

In addition to the collection of primary data, we also examined current government policies on the nurse labor market. In particular, we looked at specific policies and strategies to increase the nurse workforce, reduce attrition and manage migration of ES CARICOM trained nurses. We identified policies and strategies such as recruiting foreign nurses, providing financial incentives for nurses (wage and fringe benefits), improving the work environment, and improving work and career development opportunities. Information was gathered from government documents, published studies, administrative databases, and meetings with stakeholders (Ministry of Health officials and nursing school administrators).

Nurse Education Market

In order to fully understand the nurse education market of the five case study countries, we examined the supply and demand of the nurse education market. In particular, we analyzed the applicant pool, the intake of students, and the graduation output. Data was collected from Ministries of Education, nursing schools, and nursing registries of nursing councils.

We first identified all nursing schools in the five case study countries. Also, we identified the types of nursing degrees and programs (pre-service[†] and in-service[‡]) offered, the duration of these programs, and the various types of financing mechanisms (public, autonomous public, and private) in the five case study countries. We examined specific nurse licensure requirements and registry procedures in the five case study countries.

[†] Pre-service degrees are designed for students who do not have a license to practice as a registered nurse.

[‡] In-service degrees are designed for registered nurses who wish to continue their education.

In terms of the applicant pool, we collected data on the number of high school graduates that had the minimum qualifications for entry into nurse training programs and the number of actual applicants to nursing programs. In terms of the intake of students, we collected data on the number of applicants who were accepted into nursing programs and the number of approved positions available in the schools. Since student enrollment was directed by government policies in some countries and infrastructure and/or staffing capacity in others, we collected data on training capacity and the possible bottlenecks to increase training capacities. In terms of gradation output, we collected data on the number of graduates who completed pre- and in-service programs. Data was collected up to the last available year.

In order to calculate the unit cost to train 1 ES CARICOM nurse, we collected relevant cost information. In particular, we identified tuition costs, total annual public expenditure of nurse training including capital and recurrent costs, amount of stipends given to students, availability of scholarships, and availability of loans for nursing education.

In addition to the collection of primary data, we also examined current government policies on the nurse education market. In particular, we looked at specific policies and strategies to reform nurse education and increase the nurse workforce by increasing training capacities. We identified policies and strategies such as increasing the public expenditure for nurse education (capital cost), providing financial incentives for nurse students, increasing the annual intake of nurse students, increasing the number of nurse tutors (e.g., recruiting foreign nurse tutors), increasing the number of nursing programs, improving curricula and pedagogical approaches to nurse education (e.g., using online teaching resources), and improving completion rates. Information was gathered from government documents, published studies, administrative databases, and meetings with stakeholders (Ministry of Health officials, nursing councils, and nursing school administrators).

Database of graduates of nursing programs

For each case study country, we created a database containing the contact information of all the nurse graduates from 2 selected public nursing schools and who graduated in the year 1980, 1990, 2000, and 2005. It should be noted that there is only one nursing school in both St. Lucia and St. Vincent and the Grenadines. Also, due to policy decisions on nurse education in Trinidad and Tobago, there were no nurse graduates in 1980; therefore, data was collected for 1983. Contact information included name, address, country of residence, and telephone number. Data was collected from nursing schools' administrative records and nursing councils' records of RNCRE (except in Guyana where data was collected from the national nursing exam records). Data was further validated through administrative databases, nursing school administration and registrar offices, nursing association databases, and key informant interviews with officials from nursing councils and directors of nursing schools. The contact information was compiled into a database for use in the nurse labor and education survey.

OECD Case Country Studies

In order to better understand the ES CARICOM nurse labor market and its interaction with the global nurse labor market, we examined both the stock and inflow of ES CARICOM trained nurses to prime destination countries: Canada, the UK, and the US. This information also shed light on migratory patterns of ES CARICOM trained nurses to these destination countries. Census data was used to examine stock of ES CARICOM trained nurses in these destination countries. National nurse registration data was used to estimate inflow of ES CARICOM nurses to these destination countries.

Stock of ES CARICOM trained nurses in selected OECD countries

Canada

The 2001 Canadian Census was used to estimate the stock of ES CARICOM nurses. This data came from an approximate 2.7% sample of the Canadian census. Data was weighted using individual weights.

For this report, the ideal measure of stock of ES CARICOM trained nurses in destination countries would include all persons trained as a nurse in the ES CARICOM, regardless of current occupation or employment status. Brain drain can be estimated using this measure of stock.

In terms of estimating the stock of ES CARICOM trained nurses in Canada, the Canadian Census was limited in that data on the location of nurse training was not available. Therefore, our analysis identified foreign-educated nurses using four variables: ethnicity; immigration status; age at the time of migration; and current occupation. Specifically, stock data included all persons who reported their ethnicity as “Caribbean”, who were not born as a Canadian citizen, who immigrated to Canada after the age of 20, and whose occupation was a registered nurse. Another limitation of the Canadian Census was that the ethnicity data was not country specific and only included the classification of “Caribbean”. In order to estimate the stock of ES CARICOM trained nurses, we adjusted the stock of Caribbean trained nurses in Canada by the percentage of ES CARICOM nurses in the US (number of ES CARICOM nurses out of all Caribbean nurses in the US)(Equation 1). In addition, we needed to adjust the stock data to account for the significant percent of ES CARICOM immigrants who trained as a nurse in Canada. We did this by adjusting the stock of ES CARICOM nurses in Canada by the proportion of the number of ES CARICOM nurses trained in the US out of the total ES CARICOM nurses (Equation 2).

It should be noted that data on whether ES CARICOM trained nurses who are living in Canada are currently working as a nurse is not available. It should also be noted that the presented stock estimates may underestimate the true number of ES CARICOM trained nurses in the prime destination countries.

P₁: percentage of ES CARICOM nurses in the US out of all Caribbean nurses in the US
P₂: percentage of ES CARICOM nurses trained in the US out of the total ES CARICOM nurses
S_c: Caribbean nurses in Canada

ES CARICOM nurses in Canada

$$=S_c \times P_1 \quad \dots \quad (\text{Equation 1})$$

ES CARICOM trained nurses in Canada

$$=\text{ES CARICOM nurses in Canada} \times (1-P_2) \quad \dots \quad (\text{Equation 2})$$

UK

The 2001 UK Census was used to estimate the stock of ES CARICOM nurses. This data was commissioned from the Office for National Statistics (ONS). The Census, conducted by the ONS, is a ten-yearly compulsory survey of all people and households in England and Wales in the UK. The most recent census was conducted in 2001.

For this report, the ideal measure of stock of ES CARICOM-trained nurses in destination countries would include all persons trained as a nurse in the ES CARICOM, regardless of current occupation or employment status. Brain drain can be estimated using this measure of stock.

In terms of estimating the stock of ES CARICOM trained nurses in the UK, the UK Census was limited in that data on the location of nurse training was not available. Therefore, our analysis identified foreign-educated nurses using three variables: place of birth; immigration status; and current occupation. Specifically, stock data included all persons who reported their place of birth in an ES CARICOM country, who were not born as a UK citizen, and whose occupation was a registered nurse. Since data on age at the time of migration was not available, we were unable to directly estimate the stock of foreign-educated nurses. To compensate for this, we applied the percentage of ES CARICOM born nurses who migrated as an adult out of all ES CARICOM nurses in the US to the foreign-born stock in the UK (Equation 3). In addition, we needed to adjust the stock data to account for the significant percent of ES CARICOM immigrants who trained as a nurse in the UK. We did this by adjusting the stock of ES CARICOM nurses in the UK by the percentage of the number of ES CARICOM nurses trained in the US out of the total ES CARICOM nurses (Equation 4).

It should be noted that data on whether ES CARICOM trained nurses who are living in the UK are currently working as a nurse is not available. It should also be noted that the presented stock estimates may underestimate the true number of ES CARICOM trained nurses in the prime destination countries.

P₃: percentage of ES CARICOM nurses who is adult migrant out of all ES CARICOM nurses in the US

P₂: percentage of ES CARICOM nurses trained in the US out of the total ES CARICOM nurses

S_{UK}: ES CARICOM born nurses in the UK

ES CARICOM nurses who is adult migrant in UK

$$=S_{UK} \times P_3 \quad \dots \quad (\text{Equation 3})$$

ES CARICOM trained nurses in Canada

$$=ES \text{ CARICOM nurses who is adult migrant in UK} \times (1-P_2) \dots (\text{Equation 4})$$

US

The 1980, 1990, and 2000 US Censuses were used to estimate the stock of ES CARICOM nurses in the US. This data came from an approximate 5% sample of the US census. Data was weighted using individual weights.

For this report, the ideal measure of stock of ES CARICOM trained nurses in destination countries would include all persons trained as a nurse in the ES CARICOM, regardless of current occupation or employment status. Brain drain can be estimated using this measure of stock.

In terms of estimating the stock of ES CARICOM trained nurses in the US, the US Census was limited in that data on the location of nurse training was not available. Therefore, our analysis identified foreign-educated nurses using four variables: place of birth; immigration status; age at the time of migration; and current occupation. Specifically, stock data included all persons who reported their place of birth in an ES CARICOM country, who were not born as a US citizen, who immigrated to US after the age of 21, and whose occupation was a registered nurse. From this information, we were able to directly estimate the stock of ES CARICOM trained nurses in the US.

In addition, we needed to adjust the stock data to account for the significant percent of ES CARICOM immigrants who trained as a nurse in the US. Two different methods of estimating stock of ES CARICOM trained nurses are presented here. The standard method of calculating the number of foreign-educated nurses is to identify foreign-born nurses who migrated after the age of 21. This method is the most commonly used to analyze brain drain. However, this method does not exclude those who became a nurse after immigrating to the US. In order to obtain better estimates of brain drain – loss of foreign-educated nurses – another method was presented that described the range of estimates using 3 censuses. We created a synthetic cohort of nurse immigrants for each year of immigration (e.g. 1970 to 1974, 1975 to 1979...), and compared them between 3 censuses. Theoretically, if all nurses that were present in 2000 were educated outside of US, the number of nurses in each immigration cohort should be decreasing over time due to death and out-migration. Therefore, any observation of an increase would represent the number of foreign-born who were educated in the destination countries. We used the minimum number of nurses in each cohort over 3 census period to estimate the current

stock of foreign-educated nurses. We chose this number because any number higher would have included foreign-born nurses who were educated in the US.

It should be noted that data on whether ES CARICOM trained nurses who are living in the US are working as a nurse or not is not available. It should also be noted that the presented stock estimates may underestimate the true number of ES CARICOM trained nurses in the prime destination countries.

Inflow of ES CARICOM trained nurses to in selected OECD countries

Canada

We estimated the inflow of ES CARICOM trained registered nurses to Canada for the period 2001 to 2005. Data was provided by the Canadian Institute of Health and Information at our request, which included all nurses who were registered with Registering and Licensing Authorities in each of the provinces and territories. A limitation of this source was that it did not include ES CARICOM-trained registered nurses who were not registered with Registered and Licensing Authorities but lived in Canada.

UK

We estimated the inflow of ES CARICOM trained registered nurses to the UK for the period of 2001 to 2005. It should be noted that the UK begins counting newly registered nurses in the mid-year. Data was obtained from the website of the Nursing and Midwifery Council (NMC), which included all nurses who were registered with the NMC. A limitation of this source was that it did not include ES CARICOM trained registered nurses who were not registered with the NMC but lived in the UK.

US

We estimated the inflow of ES CARICOM trained registered nurses to the US for the period of 2004 to 2006. Data was obtained from the website of the National Council of State Board of Nursing (NCSBN), which included all nurses who had passed the Nursing Council Licensure Examination (NCLEX). NCLEX is a prerequisite for registering with the State Board of Nursing. Therefore, not all nurses who had passed the NCLEX would have necessarily registered as a RNs in the US. Another limitation of this source was that it did not include ES CARICOM trained registered nurses who did not take NCLEX exam but lived in the US.

Jamaican Nurse Labor and Education Survey

The objective of the Jamaican Nurse Labor and Education Survey was to identify labor and education market behaviors as well as their determinants.

This survey included registered nurses (RNs) who had completed the general nursing program (3 years, diploma only) for the years 1980, 1990, 2000, and 2005 from Excelsior Community College and Kingston School of Nursing.

As discussed in the ES CARICOM Case Country Study section, a database, which was created in Phase I of this project, contained contact information for all RNs who graduated in the abovementioned nursing programs from the four cohorts. Contact information includes name, address, telephone number, and/or email address. This information comes from The Nursing Council of Jamaica Registry. In order to graduate from a general nursing program and receive licensure to practice, a student must pass the Regional Examination for Nurses Registration (RENr). After passing this exam, but prior to working, all qualified RNs must register with the Nursing Council of Jamaica. Since Jamaican nurses need only register one time in their professional careers, this source of contact information is the most complete. Therefore, it is from this registry that information for the database was collected.

There were several approaches used to contact nurse graduates. The first attempt was to use the contact information collected in the database. If the RNs' contact information was not up to date, the next attempt was to contact hospitals (matrons and co-workers) to determine current contact information of these nurses. Another approach to locating RNs was to ask respondents of the survey if they had contact information of their classmates.

The Jamaican Nurse Labor and Education Survey was a telephone-based survey. The questionnaire used in this survey was developed in response to a list of research questions aimed at understanding the behavior of nurses in the labor and education market. We studied and adopted various existing surveys of migration and human resource for health. Four sample questionnaires on health care workers and migration served as models in creating this questionnaire. The questionnaire is composed of sections relating to individual characteristics, income, education, migration, employment, and job satisfaction. Four groups of respondents were identified: 1) non-migrant non-nurse, 2) non-migrant nurse, 3) migrant non-nurse, and 4) migrant nurse

Limitations of the Jamaica Nurse Labor and Education Survey

As we moved further away from the cohort graduation date, it became increasingly difficult to locate the registered nurses. Therefore data collection for the 1980 was limited. In addition, it was difficult to locate and contact all registered nurses from the Nursing Council of Jamaica registry. The contact information from the registry was not the most accurate source of contact. Especially for nurses who were originally from rural areas and who had migrated into the city to study, often time the contact information was for dormitories or apartment rentals in which they do not live anymore. We were not

able to identify those who are no longer working as a nurse. It was possible to these numbers are small.

Regional Nurse Labor Market Outlook

We examined the future supply of and demand for nurses under current policies over the next 15 years. We also examined the future supply of and demand for nurses and under alternative nurse education policies scenarios over the next 15 years. We calculated supply and demand projections for the ES CARICOM region and for each case study country.

Demand Projection

Demand was estimated based on demographic changes and projected utilization patterns of all ES CARICOM countries from 2007 to 2025. Demographic data, specifically population by five-year age group and sex, were obtained from United Nations Population Divisions (2007) for all ES CARICOM countries except for countries with populations less than 100,000 (Antigua and Barbuda, Dominica, Montserrat and St. Kitts and Nevis). Since the population of these countries made up approximately 5 % of the total ES CARICOM population, the final projection of demand was adjusted upwards by 5 %.

Canadian nurse service utilization patterns were used a starting point. It was acknowledged that nurse utilization patterns would be different between countries; however, these patterns would be quite similar between age-groups. Our reference group was the female 5 to 14 age-group (the lowest nurse utilization rate). We calculated different weights for each subgroup (sex and age-group) relative to the reference group (Table B2, Weight 1). Weight 1 represented Canadian nurse utilization patterns. To adjust for the fact that ES CARICOM citizens were likely to die earlier than their Canada counterparts, heavier weights were placed only on the older age groups (45 years and above). Weight 2 and 3 represented different magnitudes of weights placed on older age groups (Table B2, Figure B1).

Table B2: Utilization of Nurse Services & Weights

Age	Utilization Rate		Weight 1 (Canada)		Weight 2		Weight 3	
	Male	Female	Male	Female	Male	Female	Male	Female
1 0~4	56.3	41	3.6	2.6	3.6	2.6	3.6	2.6
2 5~14	17.2	15.5	1.1	1.0	1.1	1.0	1.1	1.0
3 15~19	28.9	41.7	1.9	2.7	1.9	2.7	1.9	2.7
4 20~24	31.6	60.4	2.0	3.9	2.0	3.9	2.0	3.9
5 25~34	36.8	81	2.4	5.2	2.4	5.2	2.4	5.2
6 35~44	47.6	65.4	3.1	4.2	3.1	4.2	3.1	4.2
7 45~64	123.2	117.6	7.9	7.6	17.6	15.1	32.5	31.2
8 65~74	421.8	350.9	27.2	22.6	47.4	47.3	67.6	72.0
9 75+	1048.5	1116.3	67.6	72.0	67.6	72.0	67.6	72.0

Using weights ($w_{a,s}$) and population size for each subgroup (sex and age-group), relative size of nursing needs that take into account demographic changes over time were calculated as the following: $rN_t = \sum (pop_{a,s,t} \cdot w_{a,s,t})$

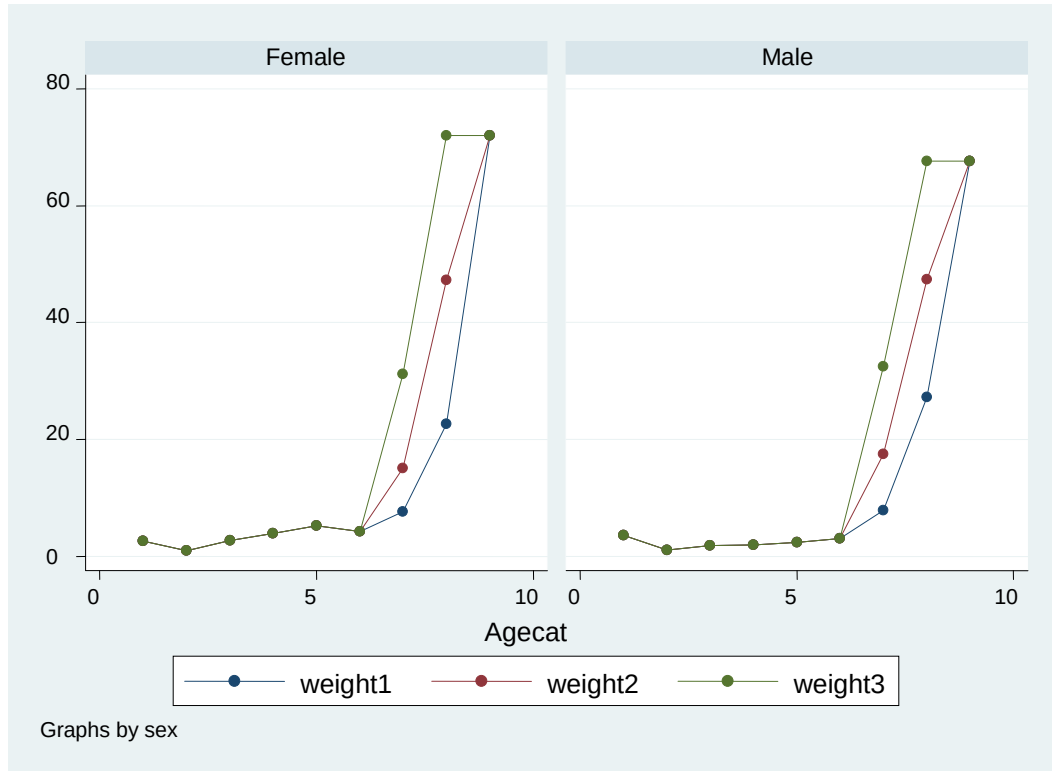
However, the exact number of nurses required could not be determined. We assumed that the sum of the current number of nurses (N) and the current number of vacancies (V) would correctly reflect current need. Therefore, annual need was calculated as following:

$$N_t = (N_{07} + V_{07}) \frac{rN_t}{rN_{07}}$$

This method only incorporated the demand due to demographic change. Concerns were raised that current vacancy rates, as an indicator of unmet demand, may understate the true needs of poorer countries in the region. Therefore, the demand was projected from 2015 onward based on nurse per population that gradually increased to regional maximum of 2.7 per 1000 by 2025.

The same method was used to calculate the demand for each individual case study country.

Figure B1: Utilization Weights



Supply Projection

Base Case Scenario

Future supply of nurses in the ES CARICOM was estimated based on information from the ES CARICOM country case study on current stock, education output, and current attrition rate. Current nurse stock in ES CARICOM was approximately 7,800 nurses, annual education output was 585 nurses, and regional attrition rate was 0.079. We assumed both education output and regional attrition rate would not change if current policies were maintained. The following equations represent the calculations for all future annual supply.

where t is year and $t=1$ is year 2007
 S is supply

$$S_1 = 7800$$
$$S_{t+1} = S_t + 585 - S_t \cdot 0.079$$

The same method was used to calculate the supply for each individual case study country.

Alternative Policy Scenarios

Table B3 summarizes the two scenarios applied in this report. In these scenarios, we assumed that current stock and attrition rates remained the same. These two scenarios represented possible changes that could be made to increase the nurse workforce. Specifically we targeted improvements in the completion rate and an increase in the intake of students.

Feasibility of these scenarios was tested based on existing constraints in the nurse education market. Constraints that were considered included number of nurse tutors, clinical training opportunities, and number of qualified applicants as discussed in the main report. As shown in the report, both clinical training opportunities and number of qualified applicants were not binding constraints. Nurse tutors were a critical input to improve completion rates as well as increase the intake of students. Using information collected in case study countries, we estimated that there were 90 nurse tutors in ES CARICOM. Student/Tutor ratio was calculated with following assumptions: 1) Students stay in the school on average 3.5 years; and 2) students drop out on average in the middle of the program.

Student/Tutor Ratio

$$= (\text{student intake into pre-service training programs} + \text{net increments}) / 2 \times 3.5 / \text{/nurse tutor}$$

Scenario 1

As described in the report and Table B3, completion rates would increase from 55 percent to 85 percent by 2011. This would occur gradually at first given that an increase in nurse tutors would not occur immediately. Therefore, we calculated a 2 year lag before the first increase in nurse tutors produces an improvement of completion rates and increase in number of nurse graduates. By 2011, we assumed completion rates would remain constant at 85 percent thereafter.

In this scenario, we would increase the intake of students by 50 percent. It should be noted that there would be on average a 3 to 4 year lag before the first increase in intake of students produces an increase in the number of nurse graduates. This is due to the fact that pre-service training programs are on average 3 to 4 years. Therefore, if these projections begin in 2007, the first indication of this policy change would result in 2010. This would result in an increase of nurse graduates from 585 to 1,340 by 2015 and constant thereafter.

For the abovementioned policy changes, the number of nurse tutors would need to be increased from 90 to 510. This calculation was based on intake of students, number of graduates, and student/tutor ratio. In our analysis, we aimed at a target of a student-teacher ratio of 10:1. In our calculations, we used the average value of student intake and number of graduates to calculate the number of nurse tutors needed. This value better reflects the number of students tutors had to teach.

$$\begin{aligned} &\text{Average number of students per year (midpoint)} \\ &= \text{intake of students} + (\text{number of graduates})/2 \end{aligned}$$

$$\begin{aligned} &\text{Total number of students in the program} \\ &= 3.5 (\text{duration of program}) \times (\text{Average number of students per year}) \end{aligned}$$

$$\begin{aligned} &\text{Total number of nurse tutor required} \\ &= (\text{total number of students in the program})/(\text{student/tutor ratio}) \end{aligned}$$

The same method was used to calculate the supply for each individual case study country.

Scenario 2

As described in the report and Table B3, completion rates would increase from 55 percent to 85 percent by 2011. This would occur gradually at first given that an increase in nurse tutors would not occur immediately. Therefore, we calculate a 2 year lag before the first increase in nurse tutors produces an improvement of completion rates and increase in number of nurse graduates. By 2011, we assumed completion rates would remain constant at 85 percent thereafter.

In this scenario, we would increase the intake of students by 100 percent. It should be noted that there would be on average a 3 to 4 year lag before the first increase in intake of students produces an increase in the number of nurse graduates. This is due to the fact

that pre-service training programs are on average 3 to 4 years. Therefore, if these projections begin in 2007, the first indication of this policy change would result in 2010. This would result in an increase of nurse graduates from 585 to 1,800 by 2015 and constant thereafter.

For the abovementioned policy changes, the number of nurse tutors would need to be increased from 90 to 680. This calculation was based on intake of students, number of graduates, and student/tutor ratio. In our analysis, we aimed at a target of a student-teacher ratio of 10:1. In our calculations, we used the average value of student intake and number of graduates to calculate the number of nurse tutors needed. This value better reflects the number of students tutors had to teach.

$$\begin{aligned} &\text{Average number of students per year (midpoint)} \\ &= \text{intake of students} + (\text{number of graduates}) / 2 \end{aligned}$$

$$\begin{aligned} &\text{Total number of students in the program} \\ &= 3.5 \text{ (duration of program)} \times (\text{Average number of students per year}) \end{aligned}$$

$$\begin{aligned} &\text{Total number of nurse tutor required} \\ &= (\text{total number of students in the program}) / (\text{student/tutor ratio}) \end{aligned}$$

The same method was used to calculate the note for each individual case study country.

Table B3: Scenarios

Scenario	Description
Base case scenario	Current policies are maintained
Scenario 1	A 50 percent increase in the intake of students into pre-service general nurse training programs and increase of graduation rate from 55 percent to 85 percent
Scenario 2	A 100 percent increase in the intake of students into pre-service general nurse training programs and increase in graduation rates from 55 to 85 percent

Estimating nurse wage differentials between ES CARICOM countries and the United States

As discussed in the report, US immigration and entry regulations create a quasi-experiment that allows identifying and analyzing determinants of migratory flows. As part of our analysis of such determinants, we compared wage differentials between the US and ES CARICOM countries to migratory flows. We calculated wage differentials as

hourly nurse wages in selected ES CARICOM countries over hourly nurse wages in the US.

For the United States, census data allowed calculating nurse wages per hour in 2005 broken down by age groups. However, for ES CARICOM countries, census data were scarce and samples too small to calculate wages of nurses. Instead, we estimated hourly wages for the age group 20 to 29 on the basis of information on pay and nurse workforce distribution by cadres in the public sector. This approach seemed justified as more than 90% of all nurses in the selected countries worked in the public sector. More specifically, we constructed country-specific career paths. For all entry level cadres, we calculated the average salary according to pay with 5 years of work experience. For all second level cadres, we calculated average salaries based on 2.5 years of work experience. We then constructed an average wage based on using a fixed distribution of 90:10 between entry and second level cadres and a distribution within entry and second level cadres based on country-specific distributions.

For the purpose of the analysis, we obtained information on annual or monthly net salaries from the five case study countries as well as from Barbados. We converted net salaries into hourly wages assuming 210 work days per year which allows for holidays, sick-leave and training and using country specific information on weekly work hours as stipulated in contracts for public employees. Furthermore, we adjusted hourly wages for inflation to arrive at 2005 data that we converted from local currencies into US Dollar by using the average exchange rate in 2005 and data on purchasing power parity.

Costs of strengthening and expanding nurse training capacity

We estimated the costs of strengthening and expanding nurse training capacity in the ES CARICOM based on the two scenarios presented in Table B3. We used a budget approach, that is, we estimated costs for each calendar year. The approach entailed differentiating between recurrent and capital costs, the former further broken down into costs of quality improvements and the recurrent costs of expanded training capacity, and developing an investment strategy for each scenario.

In addition to those presented earlier, investment strategies built on the following assumptions: First, recurrent costs of existing programs would have to be increased by approximately US\$ 380 per student or 20% of recurrent expenditures of schools with high completion rates to achieve quality improvements in the region as a whole. These investments would start immediately. Second, additional nursing schools would have on average a capacity of 120 students. Third, capital investment would be made over time span of 3 years in scenario 1 and over a period of 4 years in scenario 2.

153. Data on recurrent and capital costs were taken from St. Vincent and the Grenadines and Jamaica. We used capital costs data from St. Vincent and the Grenadines (Ministry of health and the Environment, 2003 - 2005) and recurrent costs data from Jamaica (Finance Division Ministry of Health, 2005). As necessary, data were adjusted for inflation using

2005 as the base year; furthermore, information in local currencies were converted into US Dollars by using the average exchange rate for 2005 adjusted for the purchasing power parity in the same year.

Cost Benefit Analysis

We developed a decision model to evaluate the current finance mechanism of the nurse education system in Jamaica. We conducted a cost-benefit analysis of the training of one Jamaican nurse to identify to whom cost and benefits accrue among the key stakeholders: Jamaican nurses, Jamaica, Canada, the UK, and the US. The information obtained in this analysis served to more fairly assign costs to those who benefit. The TreeAge Pro Suite 2008 from TreeAge Software, Inc. was used to run these analyses.

We first identified the key stakeholders to be Jamaican nurses, Jamaica (government and employers), Canada (government and employers), the UK (government and employers), and the US (government and employers).

We assigned costs and benefits to each key stakeholder. Based on the current financing scheme of nurse education in Jamaica, we determined that costs would be assigned to Jamaica (cost of nurse training) and nurse students (tuition paid). We determined that benefits would be assigned to nurse students (lifetime salary), Jamaica (VAT from spending of remittances), Canada (savings in nurse training), the UK (savings in nurse training), and the US (savings in nurse training).

Next, we calculated the total costs and benefits for each stakeholder. We defined the duration of the model to be 39 years, which encompassed the time period starting as a nursing student until retirement. The following describes in detail the calculation of total costs and benefits for each stakeholder.

1. Calculation of costs assigned to Jamaica: Cost of training a nurse in Jamaica.
In line with free tertiary education policies, Jamaica highly subsidizes nurse training. The cost of training a nurse in Jamaica was calculated based on the average total cost of training a nurse in the general nursing degree programs (3 years, diploma only) in Jamaica. These results were discounted by 3 percent. All information was based on findings from the case country studies. These results were converted to international \$2005 PPP.
2. Calculation of costs assigned to nursing students: Tuition for nurse training program.
Despite high levels of public subsidization, there is a trend towards co-payments by students. The cost of tuition a Jamaican nursing student has to pay was calculated based on the average total tuition paid during the general nursing degree program (3 years, diploma only) in Jamaica. These results were discounted by 3 percent. All information was based on findings from the country case studies. These results were converted to international \$2005 PPP.

3. Calculation of benefits assigned to nurse student: Lifetime salary.

The projected lifetime salary earned while working as a nurse was assigned as a benefit to Jamaican nursing students. Given that migration frequently plays a role in the working life of Jamaican nurses, several different scenarios were studied: non-migrant nurses who work in Jamaica for their whole working life; migrants who leave immediately after completing nurse training and work abroad for their whole working life; and migrants who work in Jamaica for a portion of their working life and then migrate to work abroad. In this latter case we examined four scenarios: nurses who work in Jamaica for 5 years, 15 years, 25 years, and 30 years respectively before migrating to work abroad. For the calculations of lifetime salary, we assumed the working life of a Jamaican nurse to be 35 years. We took into account the different lifetime salaries earned in Jamaica, Canada, UK, and the US, and discounted by 3 percent. Different summations of lifetime salaries were calculated depending on the length of time nurses worked in Jamaica or abroad. In order to estimate the average lifetime salary per nurse, we calculated different probabilities: Probability of migration; probability among migrants of choosing to work in Canada, the UK, or the US; probability of working exclusively in Jamaica as a nurse; probability of working exclusively abroad as a nurse; and probability of working in Jamaica for a portion of a nurse's working life and then migrating to work abroad. Data was used from the findings of the case country study and Jamaica nurse survey, and wage information from the UK National Statistics: Labour Market New Earnings Survey 2003, Census Canada 2001, and Census USA 2000. These results were converted to international \$2005 PPP.

4. Calculation of benefits assigned to Jamaica: Value Added Tax (VAT) from spending of remittances. VAT collected from items purchased with remittances sent by migrant nurses was assigned as a benefit to Jamaica. Calculations assumed that the entirety of remittances was spent on taxable purchases in Jamaica. We assumed that on average Jamaican nurses migrate after 10 years of working in Jamaica; therefore, we calculated the total annual VAT from spending of remittances over 25 years and discounted by 3 percent. Data was used from the findings of the case country study and Jamaica nurse survey, and Doing Business 2008: Paying Taxes in Jamaica (2008). These results were converted to international \$2005 PPP.

5. Calculation of benefits assigned to Canada: Savings in training expenses.

The savings in training costs that Canada would have had to spend on training a nurse in Canada was assigned as a benefit to Canada. Since all training of Jamaican nurses occurred in Jamaica, Canada did not use any internal resources to train these nurses. Due to the unavailability of data on nurse training costs in Canada, information on the cost of training a nurse in the UK (2007) was used for these calculations (see Benefits assigned to the UK). These results were adjusted to 2007 international purchasing power parity value. Then these results were converted to Canada \$2007 and finally deflated to Canada \$2005.

6. Calculation of benefits assigned to the UK: Savings in training expenses.

The savings in training costs that the UK would have had to spend on training a nurse in the UK was assigned as a benefit to the UK. Since all training of Jamaican nurses occurred in Jamaica, the UK did not use any internal resources to train these nurses. The cost of training a nurse in the UK was calculated based on the average total cost of training a nurse in the equivalent Jamaican general nursing degree programs (3 years, diploma only) in the UK. These results were discounted by 3 percent. Information was based on finding from the UK Council of Deans (2008). Finally, these results were adjusted to purchasing power parity values of UK (2005) and deflated to UK pounds (2005).

7. Calculation of benefits assigned to the US: Savings in training expenses.

The savings in training costs that the US would have had to spend on training a nurse in the US was assigned as a benefit to the US. Since all training of Jamaican nurses occurred in Jamaica, the US did not use any internal resources to train these nurses.

Due to the unavailability of data on nurse training costs in the US, information on the cost of training a nurse in the UK was used for these calculations (see Benefits assigned to the UK). These results were deflated to UK pounds (2005) and then converted to US dollars (2005).

A decision model based on the abovementioned costs, benefits, and probabilities for each key stakeholder (Jamaican nurse, Jamaica, Canada, the UK, and the US) was created. The decision model began with a nurse's choice to migrate. For those nurses who did not migrate, the sole node in the decision tree was a nurse's choice to work as a nurse, which served as a terminal node. For those nurses who migrated, the subsequent decision tree pathway was more detailed. The first node in the decision tree pathway was a nurse's choice in destination country (Canada, the UK, or the US). The second node was a nurse's choice to work as a nurse. The terminal node consisted of various sets of combinations of years working as a nurse in Jamaica and abroad (working in Jamaica for 5 years, 15 years, 25 years, and 30 years respectively before migrating and working abroad). For this model, we assumed the working life of a Jamaican nurse to be 35 years. To determine who bore the costs and benefits of training one Jamaican nurse, we calculated the expected costs and benefits for each key stakeholder and for each subsequent terminal node. Based on the probability for each distinct decision tree pathway, we calculated the average of each result of expected costs and benefits for each key stakeholder. Therefore, under current financing policies and migration patterns, we were able to estimate the expected costs and benefits for each key stakeholder in the process of training one nurse in Jamaica.

ANNEX C: ES CARICOM CASE COUNTRY STUDIES

In close collaboration with the participating governments of five ES CARICOM countries, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago, we studied their nurse labor and education markets. Collectively, these countries represent approximately 80 percent of total ES CARICOM population. Findings reflect information collected and triangulated from multiple sources including the Ministries of Health (MOH), Ministries of Education (MOE), nursing schools and councils, and public and private health care facilities. Data was further validated through key informant interviews and information published in the literature. Gathered data provided a comprehensive picture of the regional nurse labor market including active supply, vacancy rates, attrition rates, wages and immigration. In addition, this information shed light on key features of the education market including characteristics of the supply of education (number of schools, intake, completion rates) and its cost and financing.

Some of the tables in this Annex reference other tables in “Annex A: Statistical Annex (namely A9, A10, A11, A12, A13, A14, A15 and A16).

Definitions of terms used in the annex

Active Supply/Nurses	The number of nurses employed
Established Posts	The number of nursing positions in public sector established by the government
Funded Posts	The number of established nursing positions that are funded by the government
Vacancies	The number of approved and funded positions that are unfilled
Attrition	The number of nursing personnel leaving the workforce due to various reasons within a specified period of time

Guyana

Overview

The Cooperative Republic of Guyana is an independent nation with a population size of 740,000. It is located on the northeast coast of South America. Guyana has a GDP per capita in PPP of approximately \$3,300, and a ranking of 97 out of 177 in the 2007-2008 UNDP Human Development Index. Guyana spends 5.4 percent of its total GDP and 8.3 percent of its total government expenditure on health, making Guyana’s health care system largely publicly financed. The government provides funds for nearly 84 percent of health care expenditures (WHO 2005). The rest of the total expenditure on health is made up by private funds, of which 100 percent is out-of-pocket.

Table C1: Summary of Guyana Health Expenditure (2005)

Health expenditure, total (% of GDP)	5.4
Health expenditure, public (% of government expenditure)	8.3
Health expenditure, public (% of total health expenditure)	83.6
Health expenditure, private (% of total health expenditure)	16.4
External resources, total (% of total health expenditure)*	44.3
Out-of-pocket expenditure (% of private expenditure on health)	100

Source: Guyana (2005) from World Health Statistics (2008)

*Public, Private and External do not add to 100%. External resources are considered as part of public health expenditure

Health Care System

The health care system in Guyana is decentralized with the public sector playing a very large role in health care delivery. Health programs are planned and implemented by the MOH in collaboration with the Regional Democratic Council. Guyana's health care delivery system is composed of five distinct levels. Level 1 consists of health posts and stations providing health promotion and preventive care in remote areas. At level 2, health centers provide preventive, curative, and rehabilitative services. Level 3 consists of district hospitals that have on average 20 to 25 beds and provide diagnostic, inpatient, and outpatient services. At level 4, regional hospitals provide general inpatient and outpatient services in medicine, surgery, obstetrics and gynecology, orthopedics and pediatrics. At level 5, the National Referral Hospital provides diagnostic, specialist, inpatient, and outpatient services.

The private sector plays a small role in health care delivery. There are six private hospitals in Guyana and all are located in the capital city, Georgetown. These hospitals have a maximum of 35 hospital beds. In addition to public and private hospitals, there are various agencies (e.g. National Insurance Scheme), NGOs (e.g. the Parental Association), and foundations (e.g. The Foundation for Oncology) that provide health care services in Guyana.

Nursing Professions

The categories of nursing personnel are divided into five disciplines: (i) care at the secondary and tertiary level, (ii) care at the primary level which includes community health care, (iii) supervision, administrative and management, (iv) education (tutors), and (v) others.

Active supply (Table A12)

In 2007, the total number of active nurses in Guyana was 405. This represents 0.40 nurses per 1,000 populations involved in the direct provision of care (disciplines i and ii above) and 0.55 total nurses per 1,000 populations. Nurses working in the secondary and tertiary level compose 68 percent of the active supply of nurses. Supervision, administration, and management positions compose 22 percent of the active supply of nurses. 10 percent of nurses work in primary care with an additional 10 percent of the active supply of nurses in education.

Vacancies (Table A13)

In 2007, the total number of vacancies in the nurse labor market in Guyana was 470. This represents a 54 percent vacancy in the nurse labor market. There are 220 vacant general nurse positions and 145 vacant specialized nurse positions at the secondary and tertiary level and 60 vacant positions in supervision, administration, and management. These three areas account for 90 percent of the total vacancy in the nurse labor market. In addition, there are 25 vacant positions in primary care level and 20 vacant positions in nurse education.[§]

Nursing Attrition (Table A14)

In Guyana, the rate of attrition from the nurse labor market was 18.5 percent in 2007. According to the data, 75 nurses were reported to have left the nurse labor market for various reasons: 7 retired, 1 died, 55 migrated, and the remaining 12 nurses did not specify reasons for leaving. It must be noted that this data may be an underestimation of the actual attrition rate given that all hospitals could not provide data on annual attrition and formal exit interviews were not conducted with all nurses. Additionally, the nurse registry in Guyana does not have up to date information on nurse attrition.

Immigration

154. There were nine nurses who immigrated to Guyana during the period 2002 to 2007. All foreign nurses were registered nurses and all came from India.

Nursing Education

155. Guyana has five nursing schools (see Table C2): Georgetown School of Nursing, New Amsterdam School of Nursing, Charles Roza School of Nursing, St. Joseph's Mercy Hospital School of Nursing, and University of Guyana. These schools offer both pre-service courses (diploma in three-year general nursing program) and in-service courses (post-basic programs that include one-year midwifery program and bachelor's degrees). With the exception of University of Guyana, all nursing schools are under the direct control of the MOH. Except for St. Joseph's Mercy Hospital School of Nursing, all nursing schools are public. Public nursing schools are tuition-free and offer stipends to students.

[§] Our vacancy information is based on information from a report on the number of nurses approved for each position subtracted from the number of filled positions at regional health centers. Currently the method to measure vacancy is to subtract the appointed from the established. There has been no recent study of existing positions and the need for additional positions; therefore, the data used may not truly represent the needs for the nurse workforce. At the central government level, a needs assessment was performed to measure the actual employment needs. At the regional level, the Ministry of Regional Health recommends the number of approved spots for the regional health care centers. The regional health care centers submit the estimated number of necessary nurses to the Public Service Ministry who makes the final decision.

Table C2: Summary of Guyana's Nursing Schools

Nursing Schools in Guyana	Pre or In-Service	Degree Program	Duration (Months)	Org Arrang	Tuition	Subsidy	Stipend/Scholarship	Loan
Georgetown	Pre	Diploma in General Nursing	36	Public		Y	Y	Y
Georgetown	In	Diploma in Midwifery	12	Public		Y	Y	Y
New Amsterdam	Pre	Diploma in General Nursing	36	Public		Y	Y	Y
New Amsterdam	In	Diploma in Midwifery	12	Public		Y	Y	Y
Charles Roza in Linda	Pre	Diploma in General Nursing	36	Public		Y	Y	Y
Charles Roza in Linda	In	Diploma in Midwifery	12	Public		Y	Y	Y
St. Joseph's Mercy Hospital	Pre	Diploma in General Nursing	36	Private	Y		Y	Y
University of Guyana	In	Bsc Nursing / Public Health: Health Service Manager / Health Science Tutor	12/24	Autonomous Public				

Y: Yes

Tuition: Requires tuition payment by students

Subsidy: Subsidy is provided to nursing schools

Stipend/Scholarship: Stipend and/or scholarship are available for students

Loan: Loan is available for students

Requirements for Nurse Registration

Registered nurses receive their diploma after passing their final exams from a three-year recognized nursing program. Nursing students have up to three opportunities to pass their final exams. After graduation, nursing students can apply for their license to practice as a registered nurse. In addition, all qualified Registered Nurses and Midwives must be registered with the Nursing Council in order to practice their profession. In Guyana, nursing students are not required to participate in the Regional Nursing Council Registration Examination (RNCRE) in order to receive licensure to practice. It should be noted that the nurses from the other four countries in these case studies are required to participate in the RNCRE.

Cost of Nurse Education and Financing for Education

The government of Guyana supports the training of nursing students by offering stipends. Students in the Professional Nurse Education program at any of the three public nursing schools receive a stipend of \$ GYD 15,000/month. Private nursing schools also provide stipends to their students. In addition, these schools require the fulfillment of a two-year

post-education work contract at affiliated hospitals. It should be noted that the Bachelor's degree in nursing program at the University of Guyana is entirely student financed. Student loans may only be accessed through the Ministry of Finance as there are no provisions for student loans at private banks.

Intake of Nurse Training Program

A total of 246 nursing students entered into a pre-service degree program in nursing schools during the period 2004 to 2006.

Output of Nurse Training Program (Table A10 and A15)

A total of 115 graduated from nursing schools during the period 2004 to 2006. A total of 33 graduated from nursing schools in 2006. Those who graduated from other than registered nursing programs during this period are not included in Table A10.

The number of graduates per entrant in the nurse education market for the years 2004-2006 in Guyana was 0.47.

Salaries and Compensation

Table B3 shows a summary of monthly wages by nurse cadre in the public sector. Allowances are not included in the monthly wages. The salary of many cadres including staff nurse, midwife, ward sister, department sister, health visitor and tutor range between \$US 200 to \$US 550 per month. The difference between the minimum and maximum salary is less than \$US 100 per month for many cadres, indicating these salaries do not necessarily increase over the years for the same cadre.

Table C3: Summary of Wages for Nurse Personnel in Guyana

Cadre	Monthly Wages (US \$)	
	Min	Max
Staff Nurse	\$210	\$260
Staff nurse M/wife	\$240	\$340
Ward Sister	\$290	\$430
Department Sister	\$350	\$550
Matron	\$430	\$860
Health Visitor	\$350	\$710
Tutor	\$290	\$550
Specialized Nurse	\$350	\$550

Source: Ministry of Health Finance Division , Georgetown Public Hospital Corporation 2007
Amounts are rounded to the nearest ten.

This is the monthly wages in US dollars. USD 1= GYD 202

Government's strategies and policies on human resources for health, specifically nurses

Guyana's approach to managed human resources of health workers are mainly (i) to increase the intake of nursing students, (ii) to provide financial incentives, (iii) to improve the quality of staff, and (iv) to improve the physical and technical infrastructure of hospitals.

(i) Increase the intake of nursing students

Since 2005, the target number for recruiting nursing students has been 250. This target is three times larger than for the previous years. Although it is aimed at providing a sufficient number of nurses for both local employment and possible migration, it has not been implemented due to the fact that there were not enough students who meet the minimum requirements for entry into the schools.

(ii) Provide financial incentives

The loss of teachers through migration has also limited the ability of schools to increase intake of nursing students. Increases in monthly allowances were introduced to help cushion the effects of the high cost of living and provide a more realistic living wage.

(iii) Improve the quality of staff

The introduction of performance management is planned. Training opportunities and promotions will be linked to performance which can provide continuous professional development for all staff.

(iv) Improve the physical and technical infrastructure

Improve facilities to provide better care. New hospitals will be built and new technologies introduced.

Jamaica

Overview

The Commonwealth of Jamaica is a constitutional parliamentary democracy with a population of 2.7 million. It is located in the northern Caribbean. The GDP per capita in PPP is approximately \$7,200 and Jamaica ranks 101 out of 177 in the 2007-2008 UNDP Human Development Index. Jamaica spends 4.7 percent of its total GDP and 3.5 percent of the total government expenditure on health. The country's health care system is both publicly and privately financed. The government provides funds for almost 49 percent of health care expenditures (WHO 2008). The rest of the total expenditure on health is covered by private funds of which 64 percent is paid out-of-pocket.

Table C4: Summary of Jamaica Health Expenditure (2005)

Indicator	%
Health expenditure, total (% of GDP)	4.7
Health expenditure, public (% of government expenditure)	3.5
Health expenditure, public (% of total health expenditure)	48.8
Health expenditure, private (% of total health expenditure)	51.2
External resources, total (% of total health expenditure)*	1.8
Out-of-pocket expenditure (% of private expenditure on health)	63.6

Source: Jamaica, 2005.from World Health Statistics (2008).

*Public, Private and External do not add to 100%. External resources are considered as part of public health expenditure

Health Care System

The health care system in Jamaica is decentralized. The four semi-autonomous regional bodies, the Regional Health Authorities (South-East, North-East, Western, and Southern regions), provide health care for their populations. Jamaica's health care delivery system is composed of these four regions.

Nursing Professions

The categories of nursing personnel are divided into five disciplines: (i) care at the secondary and tertiary level, (ii) care at the primary level which includes community health care, (iii) supervision, administrative and management, (iv) education (tutors), and (v) others.

Active supply (Table A12)

In 2007, the total number of active nurses in Jamaica was 2,835. This represents 0.80 nurses per 1,000 populations involved in the direct provision of care and 1.06 nurses per 1,000 populations. Nurses working in the secondary and tertiary level compose 67 percent of the active supply of nurses. Supervision, administration, and management positions compose 14 percent of nurses. Nurses working in the primary level compose 8 percent of the active supply of nurses. 3 percent of the active supply of nurses is in education and 8 percent of nurses serves in other health-related areas.

Vacancies (Table A13)

In 2007, the total number of vacancies in the nurse labor market in Jamaica is 970 which represents 25.5 percent of the nurse labor market. Our data shows that there are a total of 875 vacant general and specialized nurse positions at the secondary and tertiary level and supervision levels. This accounts for 90 percent of the total vacancy in the nurse labor market. In addition, there are 90 vacant positions in primary care level and 5 vacant positions in nurse education.

Nursing Attrition (Table A14)

In Jamaica, the rate of attrition from the nurse labor market was 6.5 percent. According to the data, 166 out of 183 nurses who left the nurse labor market did not specify reasons for leaving and 17 nurses were reported to have left the nurse labor market for various reasons: 14 retired, and 3 died.

Immigration

There were 91 nurses who immigrated to Jamaica in the period 1999 to 2007. The majority of the foreign nurses was registered nurses and came from Nigeria and Cuba. It should be noted that the turnover rate among these nurses was very high. Foreign nurses serve a two-year contract in Jamaica and often opt to return to their own country or migrate to the US or Canada after their contract expires.

Table C5: Summary of Foreign Nurses in Jamaica in 1999-2006

Source Country	Certificate/ Diploma plus Specialization	MSc plus Specialization	Others
Cuba	32		BSc. Plus specialization
Nigeria	47	NA	BSc, Psyc, Periop, Ortho, Paeds, RM, Tutors
India	7		BSc, MSc, CCU, Neonatal,Tutors
Ghana	3		RN, diploma, BSc, RM, PH
Other*	2		
Total	91		

Source: 1999-2004 Hewitt et al studies ^{1,5}

MOH National HR department

UWI-University of the West Indies Human Resource (HR) department

Other*: Guyana, Burma and Russia

Nursing Education

There are eight nursing schools in Jamaica: the University of Technology, the University of the West Indies School of Nursing (UWISON), Kingston School of Nursing, Brown's Town Community College (BTCC), Excelsior Community College (EXED), Knox Community College (KCC), Northern Caribbean University, and Cornwell School of Nursing. These schools offer pre-service and in-service general nursing programs as well as in-service post-basic programs (post general nursing programs such as specialist programs and Master's degree programs). It should be noted that since 2004, the minimum qualification for all nurse tutors is a Master's degree. Most of the nursing schools are under the direct control of the MOH with the exception of UWISON, which is an autonomous public school, and Northern Caribbean University, which is a private school.

Table C6: Summary of Jamaica's Nursing Schools

Nursing Schools in Jamaica	Pre or In-Service	Degree Program	Duration (Months)	Org. Arrang.	Tuition	Subsidy	Stipend/Scholarship	Loan
UTECH	In	BSc Public Health Nursing	24	Public	Y	Y	Y	Y
UTECH	Pre	BSc N	48	Public	Y	Y	Y	Y
UTECH	In	Certificate specialty	12/24/32	Public	Y	Y	Y	Y
UWISON	Pre	BScN	36	Autonomous Public	Y	Y	Y	Y
UWISON	In	BScN	24	Autonomous Public	Y	Y	Y	Y
UWISON	In	MScN	12/24	Autonomous Public	Y	Y	Y	Y
EXED	Pre	BSc	36	Public	Y	Y	Y	Y
KSN	Pre	Certificate GN (3)	36	Public		Y		
KSN	In	Midwifery	12	Public		Y		
KSN	In	Diploma in Anesthetist	30	Public		Y		
KSN	In	Diploma in Critical Care Nursing	12	Public		Y		
NCU	Pre	Degree GN	48	Private	Y			Y
BTCC	Pre	BScN	36	Public	Y	Y	Y	Y
KCC	Pre	BScN	36	Public	Y	Y	Y	Y
CSN	Pre	Certificate GN	36	Public		Y		

Y: Yes
 Tuition: Requires tuition payment by students
 Subsidy: Subsidy is provided to nursing schools
 Stipend/Scholarship: Stipend and/or scholarship are available for students
 Loan: Loan is available for students

Requirements for Nurse Registration

In Jamaica, successful nursing students must participate in the RNCRE in order to receive licensure to practice. The examinations are prepared annually and administered in April and October of each year. In addition, all qualified Registered Nurses and Midwives must be registered with the Nursing Council of Jamaica in order to practice their profession.

Cost of Nurse Education and Financing for Education

The government of Jamaica supports the training of nursing students by offering stipends and subsidies to nursing schools. For example, stipends for accommodation are given to students for their first two years of schooling, and then students are required to pay for their accommodations during their last year. Not all nursing schools and students receive subsidies and stipends. For those who receive scholarships, funding is obtained mainly from the National Health Fund and Pan American Health Organization. It should be noted that students who receive scholarships for \$JA 500,000 are bonded for five-years to work in Jamaica and require three guarantors to secure the funds. This funding is available for all nurses enrolled in a three- year certificate program at KSN and CSN.

The cost per student for the three-year certificate program is on average \$JA 520,000 (\$US 7,536). Nurses who have graduated from three-year certificate program are then sponsored for specialist programs such as administration and education. The annual training costs for these post-graduate courses range from \$JA 483,000 (\$US 7,000) for nursing education, \$JA 47,000 (\$US 681) for the clinical instructors, \$JA 310,000 (\$US 4,500) for family nurse practitioners and nursing administration, and \$JA 168,000 (\$US 2,435) for public health nursing. The annual cost for the Bachelor's degree program varies from \$JA 150,000 at KCC to \$JA 328,000 at UWISON.

Intake of Nurse Training Program

A total of 101 students entered into nursing schools in Jamaica during the period 2004 to 2006.

Output of Nurse Training Program

A total of 69 graduated from nursing schools during the period 2004 to 2006. Those who graduated from other than the registered nursing program during the period are not included in Table A10.

The number of graduates per entrant in the education market for the years 2004-2006 in Jamaica is 0.68.

Salaries and Compensation

Table C7 shows a summary of annual salaries by nurse cadre in public sector. Allowances are not included in the annual salary. For most nursing personnel, the average salary is \$US 10,000 per year.

Table C7: Summary of Wages for Nurse Personnel in Jamaica

Cadre	Annual Wages (US\$)	
Entry level	\$8,400	\$10,000
Specialist (e.g. RN Midwife)	\$9,900	\$11,700
Ward Manager	\$11,800	\$14,100
Tutors, Dept. Sisters, PHN, MHNP	\$13,300	\$15,800
Senior Tutor, Matron, FNP	\$15,700	\$18,600
Senior Level (e.g. Matrons, Tutors)	\$16,100	\$23,200

Source: Salary scales Min of Health Personnel Division , 2007

RN- Registered Nurse, PHN- Public Health Nurse, PNP-Psychiatric Nurse Practitioner, FNP-Psychiatric Nurse

Practitioner, NA-Nurse Anesthetists

JA/US\$ 69:1

Amounts are rounded to the nearest ten.

Government's strategies and policies on human resources for health, specifically nurses
Jamaica's approaches to manage nurse shortages are mainly (i) to increase salary levels, (ii) to increase training capacities, (iii) to recruit foreign nurses for clinical areas and nursing schools, (iv) to promote Bachelor's degree programs, and (v) to promote additional training for nurses.

(i) Increase salary levels

There was a pay-freeze until 2005. Salary levels increased only after the lifting of the pay-freeze.

(ii) Increase training capacities

Since 1988, there has been a doubling of the number of nursing schools from 4 to 8. There has been more clinical placements in training sites.

(iii) Recruit foreign nurses for clinical areas and nursing schools

To compensate for these shortages and to increase the number of nurses in clinical areas and at school, the government has promoted bilateral government agreements, such as the Jamaica and Cuba Technical program and the Jamaica and Nigeria Technical AID Corporation program.

(iv) Promote Bachelor's degree programs

All general nursing programs (three year diploma program) have been upgraded to the Bachelor's degree program. Upgrading to the Bachelor's degree would promote nursing as a comparative profession for attracting qualified high school graduates. In addition, funding is available for post-basic bachelor's degree training programs.

(v) Promote additional training for nurses

Registered Nurses have more opportunities to receive training in additional specialized fields of nursing such as Ophthalmology, Renal and Oncology. Tutors are encouraged to obtain a Master's degree to enhance their teaching capabilities and enable professional advancement.

St. Lucia

Overview

Saint Lucia is a member of the Commonwealth of Nations with a population of 165,000. It is located in the eastern Caribbean Sea. The GDP per capita in PPP is approximately \$9,335 and St. Lucia ranks 72 in the 2007-2008 UNDP Human Development Index. St. Lucia spends 5.9 percent of its total GDP and 10.3 percent of the total government expenditure on health. St. Lucia's health care system is publicly and privately financed. The government provides funds for 56 percent of health care expenditures (WHO 2008). The rest of the total expenditure on health is covered by private funds of which 94.3 percent is paid out-of-pocket.

Table C8: Summary of St. Lucia Health Expenditure (2005)

Indicator	%
Health expenditure, total (% of GDP)	5.9
Health expenditure, public (% of government expenditure)	10.3
Health expenditure, public (% of total health expenditure)	56.2
Health expenditure, private (% of total health expenditure)	43.8
External resources, total (% of total health expenditure)*	0.3
Out-of-pocket expenditure (% of private expenditure on health)	94.3

Source: St. Lucia, 2005 from World Health Statistics (2008).

*Public, Private and External do not add to 100%. External resources are considered as part of public health expenditure

Health Care System

The health care system in St. Lucia is centralized. The MOH provides primary and secondary services.

Nursing Professions

The categories of nursing personnel are divided into five disciplines: (i) care at the secondary and tertiary level, (ii) care at the primary level which includes community health care, (iii) supervision, administrative and management, (iv) education (tutors), and (v) others.

Active supply (Table A12)

In 2007, the total number of active nurses in St. Lucia was 365. This represents 1.81

nurses per 1,000 populations involved in the direct provision of care and 2.10 nurses per 1,000 populations. Nurses working in the secondary and tertiary level compose 67 percent of the active supply of nurses. Supervision, administration, and management positions compose 16 percent of active supply of nurses. Nurses working in the primary level compose 15 percent of the active supply of nurses and 2 percent of the active supply of nurses are in education.

Vacancies (Table A13)

In 2007, the total number of vacancies in the nurse labor market in St. Lucia was 35, which represents 9 percent of the nurse labor market. At the time the research was conducted, there were 25 vacant general and specialized nurse positions at the secondary and tertiary level and supervision levels. This accounts for 71 percent of the total vacancy in the nurse labor market. In addition, there were 15 vacant positions in supervision, administration, and management. These four areas account for the total vacancy in the health care system in St. Lucia.

Nursing Attrition (Table A14)

In St. Lucia, the rate of attrition from the nurse labor market during the period examined was 7.7 percent. According to the data, 28 nurses left the nurse labor market for various reasons: 10 retired, 4 migrated, and the remaining 14 nurses did not specify reasons for leaving.

Immigration

There were 48 nurses who immigrated to St. Lucia during the period 2002 to 2007. Half of these foreign nurses were registered nurses and all came from Cuba.

Table C9: Summary of Foreign Nurses in St. Lucia in 2002-2007

Country	Certificate/Diploma plus Specialization	Others	Total
Cuba	24	24	48

Source: Interview with Mrs. Marlene Alexander, Deputy Assistant Secretary, Ministry of Health and Labor Relations

Nursing Education

St. Lucia has one nursing school, Sir Arthur Lewis Community College. This nursing school offers in-service general nursing programs (36 months) and in-service midwifery programs (18 months). Sir Arthur Lewis Community College is an autonomous public school.

Table C10: Summary of St. Lucia's Nursing School

Nursing Schools in St. Lucia	Pre or In-Service	Degree Program	Duration (Months)	Organizational Arrangements	Tuition	Subsidy	Stipend/Scholarship	Loan
SALCC	Pre	Associate Degree in GN	36	Autonomous Public	Y		Y	Y
SALCC	Pre	Diploma in Midwifery	18	Autonomous Public	Y		Y	Y

Y: Yes

Tuition: Requires tuition payment by students

Subsidy: Subsidy is provided to nursing schools

Stipend/Scholarship: Stipend and/or scholarship are available for students

Loan: Loan is available for students

Requirements for Nurse Registration

In St. Lucia, successful nursing students must participate in the RNCRE in order to receive licensure to practice. The examinations are prepared annually and administered in April and October of each year. In addition, all qualified Registered Nurses and Midwives must be registered with the Nursing Council of St. Lucia in order to practice their profession.

Cost of Nurse Education and Financing for Education

The government of St. Lucia supports the training of student nurses by offering a subvention to the College. At present, nursing students are required to subsidize their training by paying an annual tuition fee.

Intake of Nurse Training Program

A total of 74 students entered nursing school in St. Lucia during the period 2004 to 2006.

Output of Nurse Training Program

A total of 65 graduated from nursing schools during the period 2004 to 2006. Those who graduated from other than the registered nursing program during the period are not included in Table A10.

The number of graduates per entrant in the education market for the years 2004-2006 in St. Lucia is 0.88.

Salaries and Compensation

Table C11 shows a summary of annual salaries by cadre in public sector. Allowances are not included in the annual salary. The average salary of nurses working in the clinical setting (staff nurse) is \$US 15,000 per year.

Table C11: Summary of Wages for Nurse Personnel in St. Lucia

Cadre	Annual Wages (US\$)	
	Min	Max
Ward/Department Sister	\$17,200	\$19,200
Staff Nurse	\$13,300	\$16,800
Specialized Nurse/Health Educator	\$18,500	\$19,200
Community Health/District Nurse	\$17,200	\$18,100

Source: Ministry of Health and Labor Relations (Clinical Staff); Lansiquot 2007 (Educators)

Not included in salary levels and post has not been filled for a number of years

This is the annual wages in EC dollars. USD 1= XCD 2.65

Amounts are rounded to the nearest ten.

Government's strategies and policies on human resources for health, specifically nurses

St. Lucia's approaches to manage nurse shortages are mainly (i) to expand training programs and (ii) to recruit foreign nurses.

(i) Expansion of training programs

Students receive subsidies such as free tuition, registration costs, and books. Registered nurses who continue studies in the midwifery program can do so through a work-study program. This enables these students to continue to work and receive their salaries while they continue their studies. Students are bonded to work for a certain period after graduation.

(ii) Recruitment of foreign nurses

In 2006, 24 foreign nurses from Cuba were recruited to St. Lucia to work in the clinical setting at both the primary and secondary level. These nurses served a two-year contract and returned to Cuba upon finishing.

St. Vincent and the Grenadines

Overview

St. Vincent and the Grenadines is a member of the Commonwealth of Nations with a population of 119,000. It is located next to Saint Lucia in the eastern Caribbean Sea. The GDP per capita in PPP is approximately \$ 6,798 and it ranks 92 in the 2007-2008 UNDP Human Development Index. St. Vincent and the Grenadines spends 6 percent of its total GDP and 9.3 percent of its total government expenditure on health. The country's health care system is both publicly and privately financed. The government provides funds for 63 percent of health care expenditures (WHO 2008). The rest of the

total expenditure on health is covered by private funds of which 100 percent is paid out-of-pocket.

Table C12: Summary of St. Vincent and the Grenadines Health Expenditure (2005)

Indicator	%
Health expenditure, total (% of GDP)	6
Health expenditure, public (% of government expenditure)	9.3
Health expenditure, public (% of total health expenditure)	62.9
Health expenditure, private (% of total health expenditure)	37.1
External resources, total (% of total health expenditure)*	0.2
Out-of-pocket expenditure (% of private expenditure on health)	100

Source: St. Vincent and the Grenadines, 2005. World Health Statistics (2008)

*Public, Private and External do not add to 100%. External resources are considered as part of public health expenditure

Health Care System

The health care system in St. Vincent and the Grenadines is centralized. The MOH provides primary, secondary and tertiary services. There are three levels of health care services. At the primary care level, district health centers provide services such as emergency care, medical care, prenatal and postnatal care, midwifery and child health services. At the secondary care level, government owned hospitals and acute care referral hospitals provide specialized health care. It should be noted that the private sector plays a small role in health care delivery in St. Vincent and the Grenadines.

Nursing Professions

The categories of nursing personnel are divided into five disciplines: (i) care at the secondary and tertiary level, (ii) care at the primary level which includes community health care, (iii) supervision, administrative and management, (iv) education (tutors), and (v) others.

Active supply (Table A11)

In 2007, the total number of active nurses in St. Vincent and the Grenadines was 305. This represents 1.60 nurses per 1,000 populations involved in the direct provision of care and 1.79 nurses per 1,000 populations. Nurses working in the secondary and tertiary level compose 80 percent of the active supply of nurses. Nurses working in supervision, administration, and management compose 9 percent of the active supply of nurses. Nurses working in the primary level compose 9 percent of the active supply of nurses and 2 percent of the active supply of nurses are in education.

Vacancies (Table A13)

In 2007, the total number of vacancies in the nurse labor market in St. Vincent and the Grenadines is 50, which represents 14.1 percent of the nurse labor market. Vacancies in the secondary, tertiary, and supervision account for 70 percent of the total vacancy in the nurse labor market. In addition, there are 10 vacant positions in primary care and 5 vacant positions in nurse education.

Nursing Attrition (Table A14)

In St. Vincent and the Grenadines, the rate of attrition from the nurse labor market is 6.5 percent. According to the data, 21 nurses left the nurse labor market for various reasons: 6 retired, 1 died, and the remaining 14 nurses did not specify reasons for leaving.

Immigration

There were 40 nurses who immigrated to St. Vincent and the Grenadines during the period 2002 to 2007. All foreign nurses were registered nurses and more than half came from Cuba.

Table C13: Number of Foreign Nurses Entering St. Vincent and the Grenadines between 2002-2007

Source Country	Certificate/ Diploma	BScN *	MSc	Others	Total
Cuba	9	9	1	3	22
Nigeria	5	1			6
Philippines	1	3		5	9
Grenada	1				1
Guyana	2				2
Total	18	13	1	8	40

Source: General Nursing Council Register (2002-2007)

* Includes BA and Baccalaureate

Nursing Education

St. Vincent and Grenadines has one nursing school, St. Vincent and the Grenadines School of Nursing. This school offers a pre-service general nursing program (36 months) and an in-service post basic midwifery program (12 months). This school is an autonomous public school that is part of the St. Vincent and the Grenadines Community College.

Table C14: Summary of Programs at the St. Vincent and the Grenadines' Nursing School

Nursing School in St. Vincent	Pre or In-Service	Degree Program	Duration (Months)	Organizational Arrangements	Tuition	Subsidy	Stipend/Scholarship	Loan
School of Nursing	Pre	Certificate in GN	36	Autonomous Public	Y	Y	Y	
School of Nursing	Pre	Certificate Midwifery	12	Autonomous Public	Y-	Y	Y	

Y: Yes

Tuition: Requires tuition payment by students

Subsidy: Subsidy is provided to nursing schools

Stipend/Scholarship: Stipend and/or scholarship are available for students

Loan: Loan is available for students

Requirements for Nurse Registration

In St. Vincent and the Grenadines, successful nursing students must participate in the RNCRE in order to receive licensure to practice. The examinations are prepared annually and administered in April and October of each year. In addition, all qualified Registered Nurses and Midwives must be registered with the Nursing Council of St. Vincent and the Grenadines in order to practice their profession.

Cost of Nurse Education and Financing for Education

The government of St. Vincent and the Grenadines supports the training of nursing students by offering stipends to students and subsidies to the nursing school.

Intake of Nurse Training Program (Table A10)

A total of 200 students entered into a pre-service degree program at the nursing school from 2004 to 2006.

Output of Nurse Training Program (Table A10)

A total of 89 students graduated from the St. Vincent and the Grenadines School of Nursing during the period 2004 to 2006.

The rate of graduate per entrant in the nurse education market for the years 2004 to 2006 in St. Vincent and the Grenadines is 45 percent.

Salaries and Compensation

Table C15 shows a summary of annual salaries by cadre in public sector. Allowances are not included in the annual salary. The salary of many cadres including staff nurse, midwife, ward sister, home sister, clinical instructors range between \$US 7,700 to \$US 13,500 per year. Specialized nurses such as nurse anesthetists and nurse practitioner receive a salary between US\$12,000 and US\$16,000 per year.

Table C15: Summary of Wages for Nurse Personnel in St. Vincent and the Grenadines

Cadre	Annual Wages (US\$)	
	Min	Max
Tutor	\$ 13,600	\$ 17,400
Surveillance Officer	\$ 16,300	\$ 20,800
Coordinator NFPP	\$ 13,600	\$ 17,400
Nosocomial Nurse	\$ 13,600	\$ 17,400
Staff Development Officer	\$ 11,500	\$ 16,000
Departmental Sister	\$ 11,500	\$ 16,000
Health Nursing Supervisor	\$ 11,500	\$ 16,000
Specialized Nurse	\$ 11,500	\$ 16,000
Staff Midwives/Ward Sisters/Clinical Instructors	\$ 9,700	\$ 13,400
Staff Nurses	\$ 7,700	\$ 10,700

Source: Government Estimates, Administrative Records 2007

This is the annual wages in US dollars. USD 1 = XCD2.665

Amounts are rounded to the nearest hundred

Government's strategies and policies on human resources of health workers, specifically nurses

St. Vincent and the Grenadines' approach to managed nurses are mainly (i) to reform nurse education policies and (ii) to increase the nursing workforce.

(i) Education Reform

In 2003, the government embarked on an ambitious project to strengthen the registered nursing program. The St. Vincent and the Grenadines School of Nursing was transferred from the Ministry of Health and the Environment to the Ministry of Education - Community College (as of January 2009). The nursing assistant program will be assessed and modified to allow for matriculation into the registered nurse program once the necessary prerequisites are obtained. The registered nursing program will be upgraded from a three-year to a four-year program. For those who are currently registered nurses, individuals will be upgraded from certificate to first-degree level. The midwifery program will be expanded from a 12-month to an 18-month program and awards diploma upon completion of the program. Nurses' tutors will be required to have a Master's degree as a minimum qualification. Moreover, the capacity for training registered nurses has increased from 35 to 100 annually in 2003.

(ii) Increase the nursing workforce

To increase the nursing workforce, in 2003, the government implemented policies to increase nurse salaries, increase all allowances including night duty, on call, and traveling, and improve the health centers and nurses quarters.

Trinidad and Tobago

Overview

The Republic of Trinidad and Tobago is a country with a population of 1.3 million. It is located in the southern Caribbean Sea. The GDP per capita in PPP is approximately \$15,387 and it ranks 59 in the 2007-2008 UNDP Human Development Index. Trinidad and Tobago spends 4.5 percent of its total GDP and 8.3 percent of its total government expenditure on health. Trinidad and Tobago's health care system is both publicly and privately financed. The government provides funds for 54 percent of health care expenditures (WHO 2008). The rest of the total expenditure on health is covered by private funds of which 87.8 percent is paid out-of-pocket.

Table C16: Summary of Trinidad and Tobago Health Expenditure (2005)

Indicator	%
Health expenditure, total (% of GDP)	4.5
Health expenditure, public (% of government expenditure)	8.3
Health expenditure, public (% of total health expenditure)	53.7
Health expenditure, private (% of total health expenditure)	46.3
External resources, total (% of total health expenditure)*	2.4
Out-of-pocket expenditure (% of private expenditure on health)	87.8

Source: Trinidad and Tobago, 2005 from World Health Statistics (2008)

*Public, Private and External do not add to 100%. External resources are considered as part of public health expenditure

Health Care System

The health care system in Trinidad and Tobago is decentralized. The Ministry of Health develops, monitors, and evaluates health policy and health care delivery. Trinidad and Tobago health care delivery system is composed of three distinct levels. Five Regional Health Authorities (RHAs) provide primary, secondary and tertiary services. The five RHAs are responsible for the administration of community health services within nine country health districts. Community health centers provide primary and public health care services. Hospitals and district health facilities provide primary, secondary and tertiary care services.

Nursing Professions

The categories of nursing personnel are divided into five disciplines: (i) care at the secondary and tertiary level, (ii) care at the primary level which includes community health care, (iii) supervision, administrative and management, (iv) education (tutors), and (v) others.

Active supply (Table A12)

In 2007, the total number of active nurses in Trinidad and Tobago was 2,380. This represents 1.60 nurses per 1,000 populations involved in the direct provision of care and 1.79 nurses per 1,000 populations. Nurses working in the secondary and tertiary level compose 61 percent of the active supply of nurses; nurses working in supervision, administration, and management compose 19 percent of the active supply of nurses; 15 percent of the active supply of nurses are working at the primary level; and 5 percent of the active supply of nurses are in education.

Vacancies (Table A13)

In 2007, the total number of vacancies in the nurse labor market in Trinidad and Tobago was 1,240 which represents 34.3 percent of the nurse labor market. There are 765 vacant general nurse positions and 75 vacant specialized nurse positions at the secondary and tertiary level. The subtotal of these three areas makes up 68 percent of the total vacancy in the nurse labor market. There are 250 vacant positions in supervision, administration, and management. These four areas account for 88 percent of the total vacancy in the nurse labor market. In addition, there are 90 vacant positions in primary care level and 60 vacant positions in education.

Nursing Attrition (Table A14)

Data on attrition was unavailable from all hospitals in both the private and public sectors.

Immigration

There were a total of 216 nurses who immigrated to Trinidad and Tobago during the period 2002 to 2007. All foreign nurses came from either Cuba or the Philippines.

Table C17: Summary of Foreign Nurses in Trinidad and Tobago in 2007

Source Countries	Number of Nurses
Cuba	92
Philippines	124
Total	216

Source: Records from Nursing Division, Ministry of Health 2007.

Nursing Education

Trinidad and Tobago has several nursing schools. These are associated with either the MOH, College of Science, Technology, Applied Arts of Trinidad and Tobago (COSTAATT), the University of West Indies at St. Augustine, and the University of Southern Caribbean. These schools offer programs such as general nursing programs (36 and 48 months) and post-basic programs such as midwifery and other specialized programs (6 to 24 months). With the exception of the University of West Indies and University of Southern Caribbean, nursing schools are under the direct control of the MOH or COSTAATT.

Table C18: Summary of Trinidad and Tobago's Nursing Schools

Nursing School in Trinidad and Tobago	Pre or In-Service	Degree Program	Duration (Months)	Org Arrang	Tuition	Provision of Subsidy	Stipend/Scholarship Availability	Loan Availability
MOH POSGH SFGH	Pre	Diploma GN	36	Public		Y	Y	
MoH St. Ann's Hospital	Pre	Diploma Psychiatric Nursing	36	Public		Y	Y	
MoH POSGH SFGH	In	Diploma Midwifery	12	Public		Y	Y	
MoH SPBNE	In	Diploma Critical Care Nursing	12	Public		Y	Y	
MoH SPBNE	In	Certificate Neonatal Nursing	9	Public		Y	Y	
MoH SPBNE	In	Certificate Renal Nursing	6	Public		Y	Y	
MoH SPBNE	In	Certificate Community Nursing (6)	6	Public		Y	Y	
MoH SPBNE	In	Certificate Trauma Nursing (9)	9	Public		Y	Y	
MoH SPBNE	In	Certificate Nursing Management (6)	6	Public		Y	Y	
MoH SPBNE	In	Certificate Operating Theatre Nursing (12)	12	Public		Y	Y	
COSTAATT (LCN, LCS)	Pre	Associate Degree of Science in General Nursing	36	Public		Y	Y	
COSTAATT (LC St. Ann's)	Pre	Associate Degree of Science in Psychiatric Nursing	36	Public		Y	Y	
UWI TT	In	Diploma in Health Visiting	9	Autonomous Public	(Y)	Y	Y	
UWI TT	In	BScN	12/24	Autonomous Public	(Y)	Y	Y	
USC	Pre	BScN	48	Private	Y	Y		

Y: Yes, (Y): some students are required to pay tuition

Tuition: Requires tuition payment by students

Subsidy: Subsidy is provided to nursing schools

Stipend/Scholarship: Stipend and/or scholarship are available for students

Loan: Loan is available for students

Requirements for Nurse Registration

In Trinidad and Tobago, successful nursing students must participate in the RNCRE in order to receive licensure to practice. The examinations are prepared annually and administered in April and October of each year. In addition, all qualified registered nurses and midwives must be registered with the Nursing Council of Trinidad and Tobago in order to practice their profession. All other registration examinations such as for psychiatric nursing and midwifery are conducted locally.

Cost of Nurse Education and Financing for Education

The government of Trinidad and Tobago supports the training of nursing students by offering stipends.

Intake of Nurse Training Program

A total of 457 nursing students entered into a pre-service degree program in nursing schools from 2001 to 2003. Each nursing school has a different schedule for students' intake. Private nursing schools admit students in the fall of each year. Government schools admit nursing students on a less regular schedule depending on administrative and budgetary constraints. Each nursing schools only accept applicants from designated districts.

Output of Nurse Training Program

A total of 263 graduated from nursing schools during the period 2004 to 2006. Those who graduated from other than the registered nursing program during the period are not included in the table (Table A10).

The number of graduates per entrant in the education market for the years 2004-2006 in Trinidad and Tobago is 0.58.

Salaries and Compensation

Table C19 shows a summary of monthly salaries by cadre in the public sector. Allowances are not included in the monthly salary. The salary of most cadres range between \$US 1,000 and \$US 1,300 per month. The lowest salary among all the cadres is that of midwives who earn on average \$US 860 per month.

Table C19: Summary of Monthly Wages in Nurse Personnel in Trinidad and Tobago

Cadre	Monthly Wages (US \$)	
	Min	Max
Staff/Head Nurse	\$910	\$1,260
Midwife	\$760	\$960
District Nurse	\$1,180	\$1,260
Nursing/Clinical Instructor	\$1,180	\$1,350
County/District Health Visitor	\$1,230	\$1,370
Nursing Supervisor/Administrator	\$1,230	\$1,380

Source: Accounts Division, Ministry of Health, 2007

Amounts are rounded to the nearest ten.

This is the monthly wages in US dollars. USD 1= TTD 6.3183

Government's strategies and policies on human resources of health workers, specifically nurses

Trinidad and Tobago's approach to managed nurses are mainly (i) to reform nurse education policies, (ii) to recruit foreign nurses, (iii) to provide financial incentives, and (iv) to increase the size of human resource capacity.

(i) Education Reform

Education reform policies includes providing continuing education programs for registered nurses, increasing the number of post registered nurse training programs, establishing a Bachelor's of Nursing degree program at the UWI in St. Augustine with a focus on three specialties: education, administration, and nursing. Finally, the reforms seek to increase stipend amount for nursing students and continue to support "free tertiary education" policy.

156. (ii) Recruitment of foreign nurses

In 2003, MOH has adopted a policy to recruit foreign nurses to assist with the potential shortfall in nursing manpower. Since then 92 Cuban nurses and 174 Filipino nurses have immigrated to Trinidad and Tobago and have been deployed in a number of critical areas including education, intensive care nursing, and community health nursing. All contracts are based on three-year agreements with options for renewal.

To increase the nursing workforce, the government has also implemented policies to increase nurse salaries, increase all allowances including night duty, on call, and traveling, and to improve the health centers and nurses quarters.

(iii) Provide financial incentives

Since 2002, a 25 percent increase in monthly allowances was added to nursing salaries. In addition, nurses are provided with a monthly specialization allowance that is provided even if they are not assigned to a particular clinical area.

(iv) Increase human resource capacity

The government has established "pool" and "seasonal" schedules: "pool" schedules will allow nurses who want to work extra hours to enter the "pool" for the opportunity to be called on to work in times of nursing shortages; and "seasonal" schedules will allow nurses who cannot work the regular five-day shift to work at agreed times and days consistent with institutions needs.

ANNEX D: OECD CASE COUNTRY STUDIES

(This analysis was concluded November 2007. Changes in immigration policy after this date will not be reflected in this document.)

This section presents analyses on 1) the inflow of ES CARICOM nurses to Canada, the UK, and the US, 2) the current stock of ES CARICOM nurses in these countries, 3) the wages earned by ES CARICOM nurses in these countries, and 4) the immigration and licensure policies of these countries.

The inflow and stock data are presented in section F of the main report and an estimation methodology is provided in the Methodology Annex. Immigration and licensure policy information is discussed in the background of this Annex. After discussion immigration issues generally, we will then present 3 case studies for each country. In each case study, we will discuss issues such as the inflow and stock of ES CARICOM, and immigration requirements for nurses. ‘Inflow’ refers to the number of migrant nurses who entered to a destination country during a specified time period and ‘stock’ is the accumulated number of foreign nurses in a destination country at a given point in time.

International labor migration is a complex, expensive, and time consuming process for both prospective migrants and employers. Migrants are required to obtain the appropriate visas, permits, and other necessary certifications needed to work in destination countries.

The licensure and immigration processes are vastly different in each destination country. For example, in both Canada and the US, licensure policies are determined at the provincial/state level, whereas in the UK the licensure process is determined nationally. With respect to the immigration process, since many destination countries are facing severe nurse shortages, preferential treatment in obtaining visas and work permits is given to nurses. In Canada, nurses are fast-tracked through the visa process. In the US, there has been an increase in the number of visas approved specifically for nurses. In addition, it should be noted that each destination country is continually undergoing immigration policy reform. In the US, there are immigration policy reform discussions at the time of writing in the Congress. Since 2007, the UK has been working on dramatically changing its immigration procedures.

Canada

Inflow of ES CARICOM nurses to Canada

The inflow of ES CARICOM nurses to Canada was on average 35 nurses per year between 2002 and 2006. Compared to the UK and the US, the inflow of ES CARICOM nurses to Canada is relatively small. Detailed information on inflows is provided in section F of the main report and the estimation methodology is provided in the Methodology Annex.

Stock of ES CARICOM nurses in Canada

Using the methods outlined in the Methodology Annex, the stock of ES CARICOM nurses in Canada was estimated to be 750 nurses in 2001. This represents five percent of the ES CARICOM nurse stock in the US.

Wages

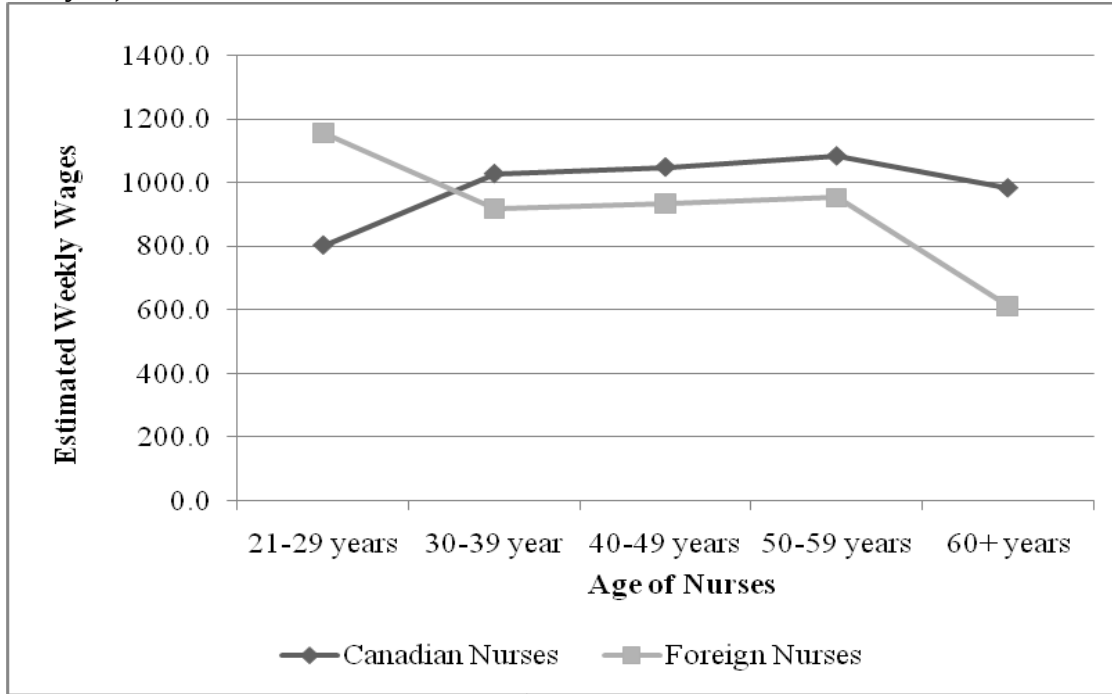
Wages per week earned by ES CARICOM nurses working in Canada were calculated using the Canadian Census, for those who have worked more than 40 hours per week and who have worked for more than 24 weeks/year (6 months) in 2000.

Table D1 shows average weekly wages of migrant nurses compared to their Canadian counterparts. A multilevel analysis was performed to compare the weekly wages between Canadian nurses and migrants nurses, controlling for factors such as age, education attainment, and location of work. There was no variable available that represented years of work experience in the Census. This analysis showed that average weekly wages are lower for migrant nurses aged 30 years or older compared to the Canadian counterparts with similar educational attainment and location of work. The differences in wages for 20 to 29 years old between Canadian nurses and foreign nurses are not statistically different. Figure D1 presents the relationship between age and the estimated weekly wages of nurses with a Bachelor's degree.

Table D1: Summary of average weekly wages (95% confidence interval) for nurses in Canada by age group and location of training

Age-group	Wages per week earned by Canadian Nurses (\$)	Wages per week earned by Caribbean Nurse (\$)	Wages per week earned by Migrant nurses from other countries (\$)
21-29 years	750 (690-810)	-	1,130 (1020-1230)
30-39 year	970 (910-1030)	590 (340-830)	930 (820-1050)
40-49 years	980 (930-1020)	930 (530-1320)	860 (690-1020)
50-59 years	1,000 (950-1050)	850 (470-1230)	910 (740-1070)
60+ years	900 (590-1210)	-	550 (210-880)

Figure D1: Estimated Weekly Wages for Nurses in Canada (results of multivariate analysis)*

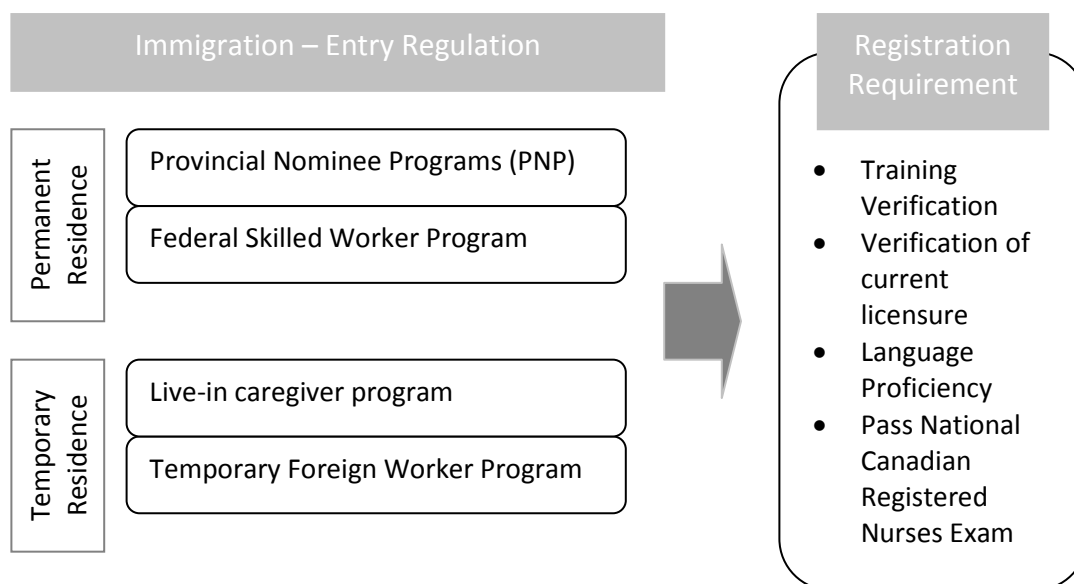


*Due to small sample size, ES CARICOM nurses and other foreign-nurses were combined in the analysis

Immigration and licensure policies

a) Basic process of migration

Foreign-educated nurses face two sets of challenges, entry regulation and professional registration. As described in the following section, there are four major programs by which nurses can obtain the appropriate immigration status. Additionally, all foreign-nurses have to go through a registration process to obtain proper licensure to practice in Canada. The detailed information on each process is described below.



b) Historical changes in immigration policy in Canada

In 2002, Citizenship and Immigration Canada (CIC) substantially changed its immigration policy to welcome immigrants based on their general qualification rather than welcoming immigrants engaged in occupations that matched the anticipated future needs of Canada. However, there are no substantial documents available that specify the impact of these immigration policy changes on nurse migration.

c) Visa/work-permit types

There are two employer-driven immigration programs: the Temporary Work Permit program and the Provincial Nominee Program (PNP) (Health Match BC). In addition to these programs, there are two individual-driven programs: the Federal Skilled Worker program and the Live-in Caregiver program.

♦ Temporary Work Permit program

In order for employers to be able to utilize the Temporary Work Permit program, employers are required to show that they cannot otherwise fill the position with domestic labor. The temporary work permit is the work permit under which holders are not allowed to immigrate to Canada permanently. The information concerning the amount of time a migrant nurse can work in Canada under a temporary work permit is unclear (no limitation cited in the CIC). According to the Vancouver's health provider's group, Vancouver Coastal Health, it takes up to six months to complete the work permit/visa process.

In addition, migrant nurses are required to register with the appropriate provincial licensing authority prior to applying for a work permit/visa. After a migrant nurse obtains a temporary work permit and an employer obtains the necessary documents from the Human Resources and Skills Development Canada (HRSDC), migrant nurses can apply to the Citizenship and Immigration Canada (CIC) for permanent status. It should be noted that acquiring authorization from the HRSDC is known to be a major stumbling

block in the immigration process (Jeans et al 2005). In addition, migrant nurses who have obtained a temporary work permit gain additional points in the Federal Skilled Workers program (see below) towards permanent residence status.

◆ Provincial Nominee Program (PNP)

The PNP is an immigration program that allows provinces to select highly skilled immigrants to fill critical areas in the labor market. Migrant nurses are required to apply directly to the specific province in which they will work. They also need a job offer from an employer based in the province prior to applying to this program. The PNP selects and nominates potential immigrants for permanent residence. Individuals nominated by a province together with their spouse and dependent children, are eligible to apply for a permanent resident visa from the CIC in the Provincial Nominee class. The CIC gives priority to processing permanent resident visa applications for provincial nominees. In addition, migrant nurses are required to register with the appropriate provincial licensing authority prior to applying for a visa in that province. Provinces consider applications based on needs in that particular occupation. It has been reported that this process takes no more than nine months (Tsuji).

◆ Federal Skilled Worker program

The Federal Skilled Worker program is an individual-driven program. Thus, it is not necessary for migrant nurses to have employer support to apply to this program. Individuals are tested based on skill category, work experience, education attainment, age, language skills, arranged employment, and adaptability. Under the Federal Skilled Worker program, the nursing profession does not have any advantage over other professions in obtaining permanent residence status.

◆ Live-in Caregiver program

Another widely used program by migrant nurses to obtain permanent residence in Canada is the Live-in Caregiver program. This program offers a fast track to applying for permanent residence after working for two years as a care provider for children, elderly persons or persons with disabilities in private homes. However, a reported drawback to this program is that university educated nurses tend to experience reduced employment opportunities due to not practicing their clinical skills for over two years. As reported by a study conducted on Filipino nurses' experience with immigration to Canada, after entering the country through the Live-in Caregiver program and working as a caregiver for two years, they experienced reduced opportunities to work as a registered nurse because of the loss of clinical skills (Pratt 1999). It should be noted that this immigration rule was modified in 2002 due to lobbying efforts by the Filipino Nurses' Support Group (Bach 2003).

d) Preferential treatment for nurses in the visa process

Migrant nurses who are provincial nominees are often times fast tracked through the permanent residence application process.

e) Registration and licensure

Registration is a process by which a nurse informs a state or an association that they perform their professional services, so that a governmental body can maintain the list of nurses in their jurisdiction. Licensure, on the other hand, guarantees that a nurse has met certain qualification in order to perform a particular service.

The first step in the Canadian immigration process is to register with the appropriate provincial licensure authority in order to receive licensure to practice. Once this is completed, the next step in the process is to obtain a work permit/visa. A migrant nurse must then pass the National Canadian Registered Nurses Exam (in no more than three attempts). The passage of this exam is necessary for a migrant nurse to be considered for licensure. Finally, after obtaining both a work permit/visa and licensure to practice (and if participating in the employer-driven immigration process, the employer has obtained all the necessary documents), a migrant nurse is then qualified to apply to the CIC for permanent residence status. There is no centralized credentialing authority in Canada. The entire certification and qualification assessment process is conducted at the provincial level.

f) Additional clinical/supervised training

Canada is in the process of developing best-practice guidelines to integrate migrant nurses into the health care delivery system (Simoens et al 2005).

g) Required documents

The appropriate licensure body at the provincial level reviews all required documents, such as credentials and language proficiency. It should be noted that there is no accepted national standardized process for reviewing these documents.

h) Costs for migration

The cost of the immigration process is expensive and can be an inhibitory factor for migrant nurses. This cost includes registration fee, examination fee, language tests, necessary translations, and tuition for possible additional required courses. Often times, migrant nurses are required to have additional training to be able to register and receive licensure to practice. The cost of additional training can be as expensive as \$13,000 (Bach 2003). According a Canadian Nurse Association report, the overall costs for a migrant nurse partaking in the Canadian immigration process are estimated to range between \$1,000 and \$20,000 (Jean et al 2005). It should be noted that costs vary depending on which type of work permit/visa is sought.

UK

Inflow of ES CARICOM nurses to the UK

The inflow of ES CARICOM nurses to UK was on average 300 nurses per year between 2002 and 2005. Compared to Canada and the US, the inflow of ES CARICOM nurses to the UK in this period is the largest. This large influx of nurses reflects efforts by the National Health Service (NHS) to recruit migrant nurses. Detailed information is

provided in section F of the main report and the estimation methodology is provided in the Methodology Annex.

Stock of ES CARICOM nurses in the UK

Using the methods outlined in the Methodology Annex, the stock of ES CARICOM nurses in the UK was estimated to be 4,750 nurses in 2001. This represents 30 percent of the ES CARICOM nurse stock in the US.

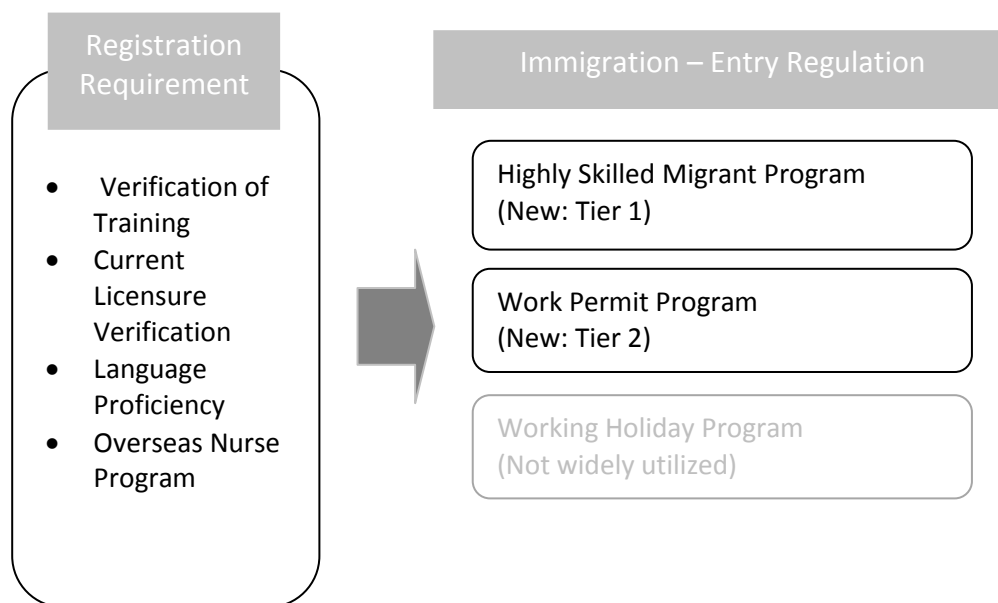
Wage

UK Census did not collect income or wage information. Thus, an analysis was not performed.

Immigration and licensure policies

a. Basic process of migration

Like entry to Canada, foreign-educated nurses have to overcome both entry regulation and professional registration challenges. There are two major programs to obtain appropriate immigration status as described in the following section. Additionally, all foreign-nurses have to go through a registration process to obtain proper licensure to practice in UK. The detailed information on each process is described below.



b) Historical changes in immigration policy in the UK

The UK is in the midst of reforming its immigration policy. New immigration programs are in the process of review and are expected to be adopted by early 2008 (Home Office 2007). The new UK immigration policies are similar to the Canadian Federal Skilled Worker program.

c) Visa/work-permit types

There were three immigration programs in the UK that nurses can utilize. However, the UK has planned to overhaul the existing immigration system in 2008, which will integrate these existing programs under one consolidated system (Home Office 2007).

◆ Skilled Worker Program

The 2002 Skilled Worker program is a points-based immigration program, where immigrants are admitted based on the “points” that reflect their talents and skills. This program is an individual-driven program; therefore, a migrant does not need advance endorsement from a UK employer. Successful applicants are allowed to work for up to one year in the UK without a work permit, and may apply for an extension of up to three years. After four years, applicants may apply for permanent residence status. Migrant nurses are qualified to apply for work permit/visas through the Skilled Worker program.

◆ Work Permit Program

Given that the Work Permit program is employer-driven, an employer must agree in advance to provide employment prior to a migrant nurse applying for a work permit/visa. The Work Permit program issues work permits for a specified period of time. Migrant nurses receive work permits that are valid for two years (Buchan 2002). Occupations that are considered in a state of shortage in the UK are often times fast-tracked through the work permit application process. According to Buchan’s 2002 report, registered nurses and midwives were categorized as occupations in a state of shortage. It should be noted that applicants who are citizens of countries within the European Union are not required to apply for work permits.

◆ Working Holiday Program

The Working Holiday program is valid for citizens of a Commonwealth country, between the ages of 17 and 30 years, who are independent (with no family), and who are deemed to have sufficient funds. Working Holiday visas are valid for two years; however, holders of this visa may only work one of those two years. Migrant nurses typically do not apply for this type of visa.

d) Preferential treatment for nurses in the visa process

As long as the nursing profession is recognized as an occupation in a state of shortage in the UK, applications through the current work permit program will continue to be fast-tracked for all migrant nurses. It should be noted that this status is under constant review. Preferential treatment will cease to exist once the nursing profession is no longer recognized as in a state of shortage.

e) Registration and licensure

The Nursing and Midwifery Council (NMC) is singularly responsible for UK’s registration of nursing and midwifery professions. Unlike Canada or the United States, no direct examination is required to obtain licensure in the UK, but nurses’ overall credentials are assessed, including their English skills, by the NMC for all nurses.

Since 2005, the Overseas Nurse program (ONP) was added as the part of registration procedure for migrant nurses who come from countries outside the European Economic Area (EEA). The ONP sets out common entry standards, a compulsory 20 day period of protected learning for all nurses trained outside the EEA, and where appropriate, a period of supervised practice (NMC (a)). Migrant nurses who meet the minimum requirements set out by the Nursing and Midwifery Council (NMC) are required to partake in all or part of the ONP. Migrant nurses must successfully complete the core elements of the ONP prior to registering with the NMC. In addition to the ONP, since 2007 it is mandatory for all migrant nurses and midwives to take the British Council's International English Language Test (IELTS), even those migrants whose native language is English.

A potential nurse migrant has to prepare two application forms to the NMC and then participates in the ONP program. For the first application form, a nurse has to provide a certified registration certificate, copy of passport, birth certificate, marriage or civil partnership licensure and an IELTS score. After review of the initial application and supporting documents by the NMC, an applicant must complete several additional forms within six months: application form, post-registration experience form, references, transcript of training, and registration authority/licensing form. After completion of the application process, migrant nurses are required to participate in the ONP by partaking in a 20 day protected learning course and if appropriate, a period of supervised practice is required.

f) Additional clinical/supervised training

Migrant nurses are required to partake in all or a part of the ONP in order to register with the NMC.

g) Required documents

The NMC reviews all required documents, such as credentials, language proficiency, proof of employer endorsement (when applicable), and completion of the ONP. Within the new UK point system program, proof of a Bachelor's degree will be the minimum requirement for the tier-1 visa.

h) Costs for Migration

There has been no cost analysis for the immigration process in the UK.

US

Inflow of ES CARICOM nurses to the US

The inflow of ES CARICOM nurses to the US was on average 165 nurses per year between 2004 and 2006. The inflow of ES CARICOM nurses to the US was relatively small during this time period compared to previous time periods. Detailed information concerning inflows is provided in section F of the main report and the estimation methodology is provided in the Methodology Annex.

Stock of ES CARICOM nurses in the US

The stock of ES CARICOM nurses in the US was estimated to be 15,550 nurses in 2000. This represents three times the stock of ES CARICOM nurses in the UK and 20 times the stock of ES CARICOM nurses in Canada.

Wages

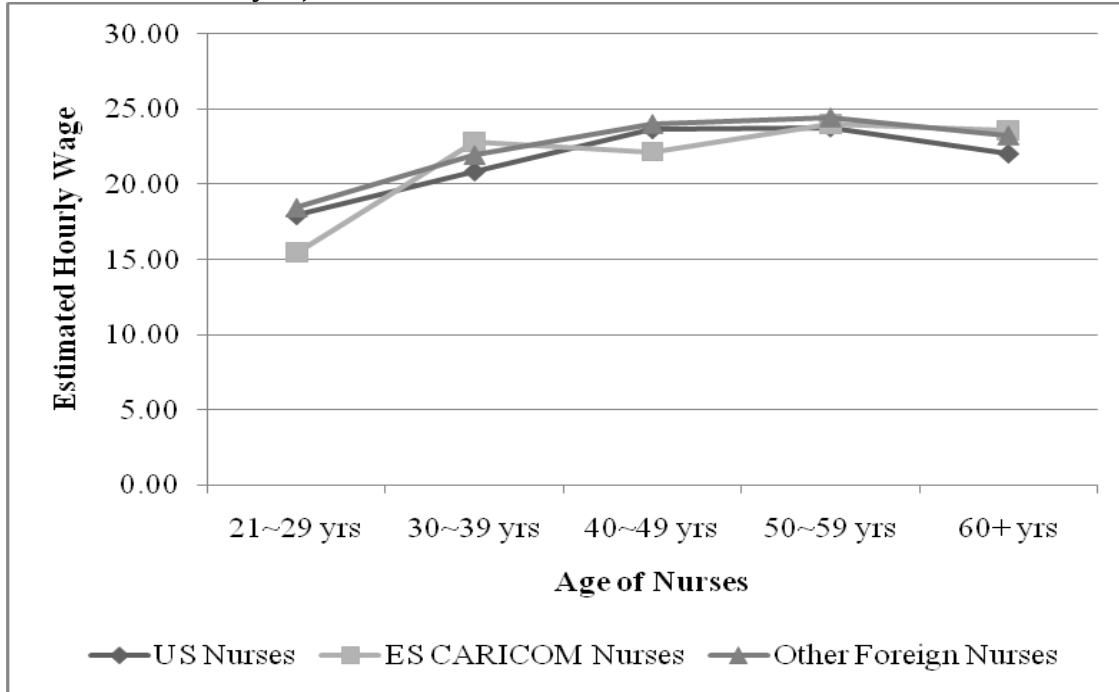
Wages per hour earned by ES CARICOM nurses working in the US were calculated using the 2000 US Census, for those who have worked more than 40 hours per week and who have worked for more than 24 weeks/year (6 months) in 1999. Data from the US Census shows that there is a wide range of wages earned by nurses.

Table D2 shows the average hourly wages of migrants nurses compared to their US counterparts. A multilevel analysis was performed to compare the hourly wages between US nurses and migrant nurses, controlling for factors such as age, education attainment, and location of work. There was no variable available that presents years of work experience in the Census so age served as a proxy. This analysis demonstrated that US-educated nurses and migrant nurses are paid an equivalent hourly wage. Figure D2 presents the relationship between age and the estimated weekly wages of nurses with a Bachelor's degree.

Table D2: Summary of average hourly wages for nurses in the US by age group and location of nurse training

Age Group	Wages per hour earned by US nurses (\$)	Wages per hour earned by ES CARICOM nurses (\$)	Wages per hour earned by migrant nurses from other countries (\$)
21-29 years	19	16	20
30-39 years	22	24	24
40-49 years	24	23	26
50-59 years	25	25	26
60+ years	23	26	25

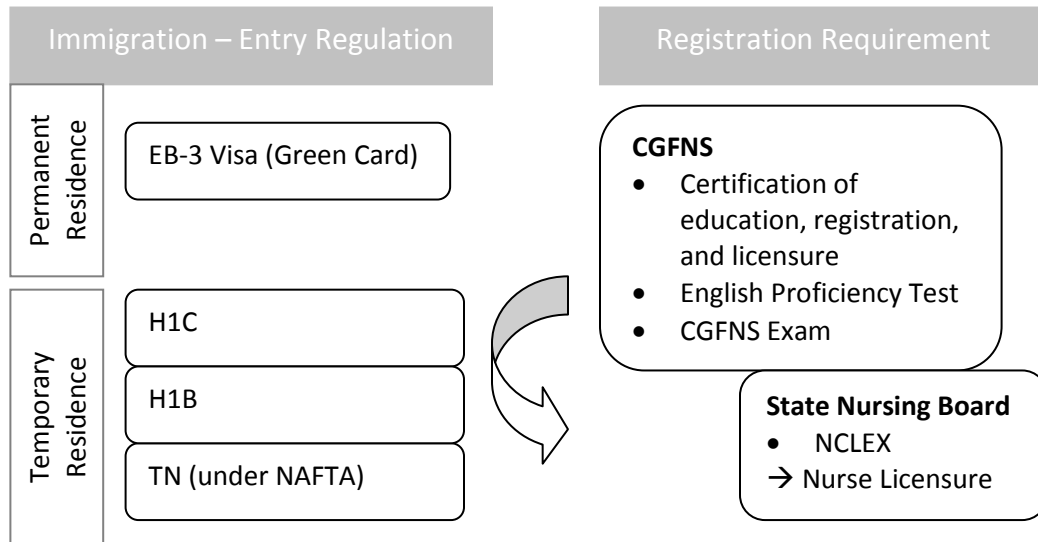
Figure D2: Estimated Hourly Wage for Nurses in the United States (Results of Multivariate Analysis)



Immigration and licensure policies

a) Basic process of migration

Like entry to Canada and the UK, foreign-educated nurses have to overcome both entry regulation and professional registration obstacles. Unlike the other two case study countries, however, nurses' professional qualifications were verified in two separate steps. The detailed information on each process is described below.



b) Historical changes in immigration policy in the US

Historically, temporary worker nurse migrants entered the US on a H-1A visa. Between 1989 and 1995, 30,000 migrant nurses entered the US on a H1-A visa. Due to resistance from the American Nursing Association (ANA), this process was phased out in 1995. Currently, the H-1B visa (for highly qualified nurses) and the H-1C visa (500 per year and only for limited areas) are the two options available for obtaining a temporary visa. The EB-3 (green card) is an option for a permanent employment-based visa.

c) Visa/work-permit types

There are several immigration programs in which migrant nurses can apply to enter the US. The process for obtaining all types of US visas for migrant nurses is employer-driven. Migrant nurses can enter the US on a permanent employment-based visa (green card). Another option are temporary non-immigrant visas (H-1B and H-1C). In addition, there is the NAFTA program (TN visa).

♦ EB-3 Visa (Green Card)

It is widely acknowledged that a temporary visa for nurses is extremely limited in the US. Therefore many migrant nurses try to enter the US on an EB-3 visa (Dawson 2005, Arends-Kuenning 2006). In 2005, the US government granted 140,000 EB-3 visas to skilled workers who had a minimum of two years work experience (Arends-Kuenning 2006). This is an employer-driven program, and thus employers are required to file requests for these visas on behalf of the migrant laborers. In addition, employers are required to prove that they are otherwise unable to fill these positions with domestic laborers. However, since nursing is recognized under the Immigration and Naturalization Services (INS, now United States Citizenship and Immigration Services (USCIS)) as being in shortage, employers are exempt from showing they were unable to hire US qualified workers (Neal 2002). In 2005, an additional 50,000 special category permanent employment-based visas (EB-3 RN) were set aside for nurses (Schaper 2005 in Arends-Kuenning 2006). The process of obtaining an EB-3 can take a long time, in some cases taking as long as two years (Shusterman 2002).

♦ H-1C

H-1C visa is a temporary visa program set up exclusively for nurses. Each year, only 500 H-1C visas are available, and the number is limited to 25 migrant nurses per state for small states and 50 migrant nurses for large states (Arends-Kuenning 2006). Migrant nurses can only be brought to hospitals located in regions that are designated as having a shortage of healthcare professionals. These regions primarily are located in inner cities and some rural areas (Neal 2002). The Department of Labor (DOL) is mandated to certify that facilities seeking to import migrant nurses have taken the appropriate steps to recruit and retain US nurses, and they are not presently experiencing a labor dispute. Legislation is periodically introduced to Congress to expand the number of H-1C Visas available (Dawson 2005). The ANA strongly opposes this type of legislation (ANA 2005).

◆ H-1B

H-1B visas are granted to highly qualified professionals, such as doctors and engineers. In order to qualify for an H-1B visa, the job the applicant seeks must require at minimum a Bachelor's degree. Migrant nursing positions, such as clinical specialists, practitioners and certified midwives, may qualify for an H-1B visa (Arends-Kuenning 2006). Also, migrant nurses who are in fields that are in high demand may be issued H-1B visas. It remains uncertain whether the educational restriction for this visa will exclude registered nurses who do not have a Bachelor's degree. For example, Caribbean 'diploma nurses' may be excluded from H-1B and H-1C visas (Dawson 2005). However, the INS sometimes makes exceptions to this rule based on the US Department of Labor's view that there are three educational paths to a nursing degree (a two-year Associate's Degree, a three-year diploma, or a four-year Bachelor's Degree). There are no more than 65,000 H-1B visas issued per year (Arends-Kuenning 2006).

◆ NAFTA (TN Visa)

In accordance with the NAFTA agreement, Canada, Mexico, and the US have removed all quota limitations on temporary migration of nurses. Professionals, including nurses with university degrees, can apply for a TN visa. However, use of this agreement has been limited given that there is limited recognition of nurse qualifications among the countries and an absence of standardized licensing requirements. Migrant nurses are still required to obtain a temporary visa to work in the US (Simoens et al 2005). Migrant nurses from Canada and Mexico must pass US requirements for licensure and prove English proficiency. In addition, there has been a cap on the number of migrant nurses who can enter on the TN visa (up to 5,500 per year). These abovementioned factors limit the number of Mexican nurses who have migrated under the NAFTA program (Aiken et al 2004).

◆ Licensed Practical Nurses (LPNs) / Nurse Aides

Documentation on the type of visas used by LPNs and Nurse Aides to enter the US is limited. However, the number of LPNs and Nurse Aides in the US is substantial, especially from Caribbean countries. Given their qualifications and the existing visa programs, LPNs and Nurse Aides only qualify for the EB-3 program. However, the 2005 EB-3 RN program limits EB-3 visas for only registered nurses.

d) Preferential treatment for nurses in the visa process

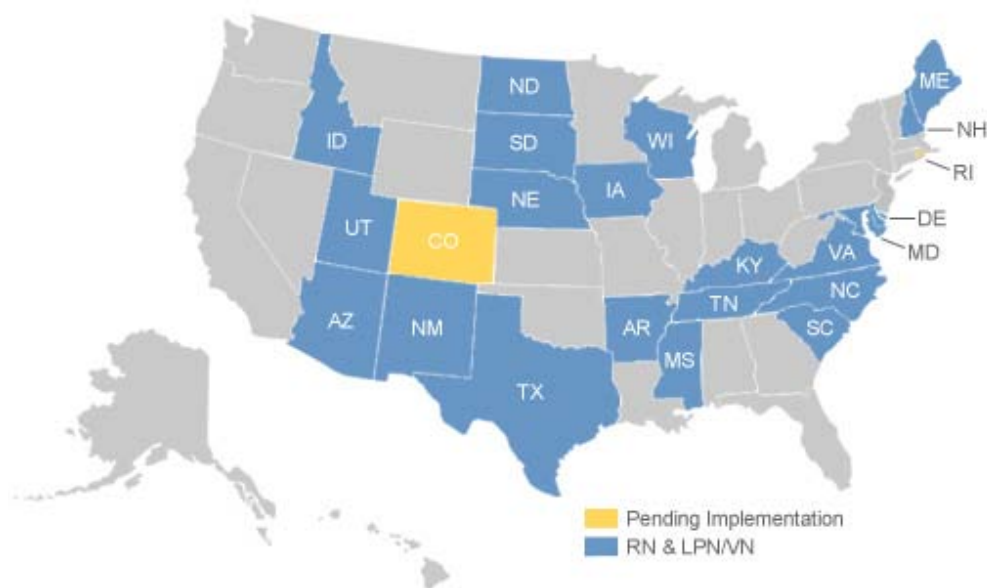
The H-1C visa and the EB-3 RN visa are designated for registered nurses. Additionally, employers are exempt from showing proof of labor shortages, which facilitates the fast-tracking of EB-3 RN visas.

e) Registration and licensure

While the final registration process for health professionals in the US is regulated at the state level, the US has created an institution called the Commission on Graduates of Foreign Nursing Schools (CGFNS) to screen and certify the credentials of health professionals who wish to work in the US. All nurse migrants are required to go through the process with CGFNS *before* applying for a visa, making this part of the registration requirement a prerequisite for the immigration process.

Therefore, the first step in the immigration process is for migrant healthcare professionals to obtain a CGFNS *VisaScreen* certificate from the International Commission on Healthcare Professions (Extract from CGFNS 2006). As part of the *VisaScreen* certificate, applicants have to provide both secondary and nursing education certificates and registration and licensure documents. Also, migrant nurses must successfully pass an English proficiency exam (ICHP 2007a). Caribbean countries that are exempt from this English proficiency exam are Barbados, Jamaica, and Trinidad and Tobago. In addition to the *VisaScreen* certificate, migrant nurses must successfully pass the Commission on Graduates of Foreign Nursing Schools (CGFNS) exam and the National Council Licensure Examination (NCLEX). The CGFNS certificate is required to obtain a visa. The successful passage of the NCLEX is needed in order to practice in the US. The CGFNS serves as an indicator of a migrant nurse's ability to pass the NCLEX. In mandating the certificate, the process limits the number of migrant nurses who apply for a visa. If an applicant can demonstrate "full and unrestricted license to practice professional nursing in the state of intended employment" (ICHP 2007a), then the applicant is not required to take CGFNS. However, all applicants, without exception, must successfully pass the NCLEX in order to practice in the US.

A new initiative by the National Council of State Boards of Nursing (NCSBN) called the Nurse Licensure Compact (NLC) is a mutual recognition model of nurse licensure between various states (NLCA 2004). Each state has to enter an interstate compact (such as NLC) to achieve mutual recognition (NCSBN 2002, 2003). If a nurse has licensure from the state of his/her residency that has been admitted to the NLC, then the nurse is allowed to practice in other states that also are members of NLC. The map below shows the participating states to NLC as of January 2007 (NCSBN 2007). States in grey are not part of NLC.



f) Additional clinical/supervised training

Unlike the UK, the US does not require migrant nurses to partake in any additional clinical/supervised training.

g) Required documents

The appropriate licensure body at the state level reviews all required documents, such as credentials, language proficiency, the CGFNS/ICHP *VisaScreen* Certificate, and successful passage of the CGNFS and NCLEX.

h) Costs for migration

Immigration to the US is an expensive process. This cost includes visa application fees, registration and licensure fees, VisaScreen and CGFNS certificates, NCLEX fees, and all other processing fees. Typically, it is either the prospective employer or the migrant nurse who pays for these fees. In addition, private recruiting agencies are often involved in this process. It has been reported that hospitals pay on average \$US 5,000 to \$US 10,000 per nurse (three-year contract) to private recruiting agencies (Arends-Kuenning 2006). One benefit of working with a private recruiting agency is that they will repay all costs to the hospital if a migrant nurse does not fulfill their contract. Since recruiting and employing migrant nurses is expensive, it is the larger hospitals that tend to be involved in this practice (Pizer et al 1994).

ANNEX E: JAMAICAN NURSE LABOR SURVEY

The objective of the Jamaican Nurse Labor and Education Survey was to identify how and why potential nursing students made their education and labor market decisions. The survey interviewed registered nurses (RNs) who had completed the general nursing program (three years, diploma only) at Excelsior Community College and the Kingston School of Nursing in the years 1980, 1990, 2000, and 2005. This annex presents descriptive statistics resulting from the survey. Each table or figure is accompanied by a question that each section attempts to answer, followed by a description of the tables or figures to explain their meaning clearly. In the comparisons between non-migrant and migrant RNs, only the 1980 and 1990 cohorts were studied since no migrants were interviewed from among the 2000 and 2005 cohorts.

Description of the Survey Sample

We identified the residence of 79 percent (243 RNs) of the original sample of Jamaican nurses. Among those whose residence was identified, 53 percent (161 RNs) completed the interview. Response rates were higher among the more recent cohorts of graduates (Table E1).

Table E1: Sample of the Jamaican Nurse Study

Sample	1980	1990	2000	2005	Total
Original Sample	92	54	73	89	308
Identified Residence	44	51	66	87	243 (79%)
Interviewed (response rates %)	21 (23%)	30 (56%)	40 (54%)	70 (79%)	161 (53%)

Individual Characteristics of RNs

What are the social and demographic characteristics of the RNs?

Ninety-nine percent of the nurses who were interviewed were women (Table E2). The average age of graduation for these RNs was 25 years old. Among the 1980 and 1990 cohorts, nearly 60 percent of RNs were married. Half of the RNs from the 2000 cohort were married, and about one-third of the RNs in the 2005 cohort were married. RNs from the 1980 cohort had an average of two children. RNs from the 2000 cohort had an average of one child (Table E3).

Table E2: Gender of the RNs (RNs Interviewed)

Gender	Number
Female	154 (99%)
Male	1 (1%)
Total	155

Table E3: Mean Age, Mean Age at Graduation, Percentage of Married Respondents, and Mean Number of Children, (RNs Interviewed)

Descriptive	1980	1990	2000	2005
Mean Age (in 2008)	53.1	40.7	33.3	30.1
Mean Age at Graduation	25.8	22.7	25.3	27.1
% Married	57%	57%	50%	32%
Mean Number of Children	1.9	1.6	1.1	0.6

Where do RNs live and how many live abroad?

Among the sample of RNs whose residence was identified, 31 percent were living abroad, of whom 77 percent were living in the US (Table E4). Of the sample of nurses who were interviewed, 17 percent were living abroad, of whom 96 percent were living in the US (Table E5).

Higher percentages of the older graduation cohorts lived abroad than among the younger cohorts. Among those interviewed, Seventy-one percent of the RNs in the 1980 cohort lived abroad and 43 percent of the 1990 cohort lived abroad. No RNs from the 2000 and 2005 cohorts lived abroad at the time when the interviews were conducted (Table E5).

Table E4: Residency of Jamaican RN (RNs Whose Residency was Identified)

Residence	1980	1990	2000	2005	Total
Jamaica	6	20	58	86	170
Bahamas	0	1	0	0	1
Bermuda	1	1	0	0	2
Canada	4	1	0	0	5
Europe	0	1	0	0	1
UK	1	3	1	0	5
USA	32	24	4	0	60
Other	0	0	3	1	4
Total	44	51	66	87	248
Total Abroad (%)	38 (86%)	31 (61%)	8 (12%)	1 (1%)	78 (31%)

Table E5: Residency of Jamaican RNs (RNs Interviewed)

Residence	1980	1990	2000	2005	Total
Jamaica	6	17	40	70	133
Bermuda	1	0	0	0	1
USA	14	13	0	0	27
Total	21	30	40	70	161
Total Abroad	15 (71%)	13 (43%)	0	0	28 (17%)

Do migrant and non-migrant RNs differ in terms of their parent's educational attainment?

The responses of the RNs in the 1980 and 1990 cohorts revealed that the highest education degree obtained by at least one of their parents was a high school diploma. In total, 44 percent of RNs had at least one parent who completed secondary education. None of their parents obtained a tertiary education degree. Fifty percent of non-migrant RNs had at least one parent who completed secondary education compared with 39 percent of migrant RNs (Table E6).

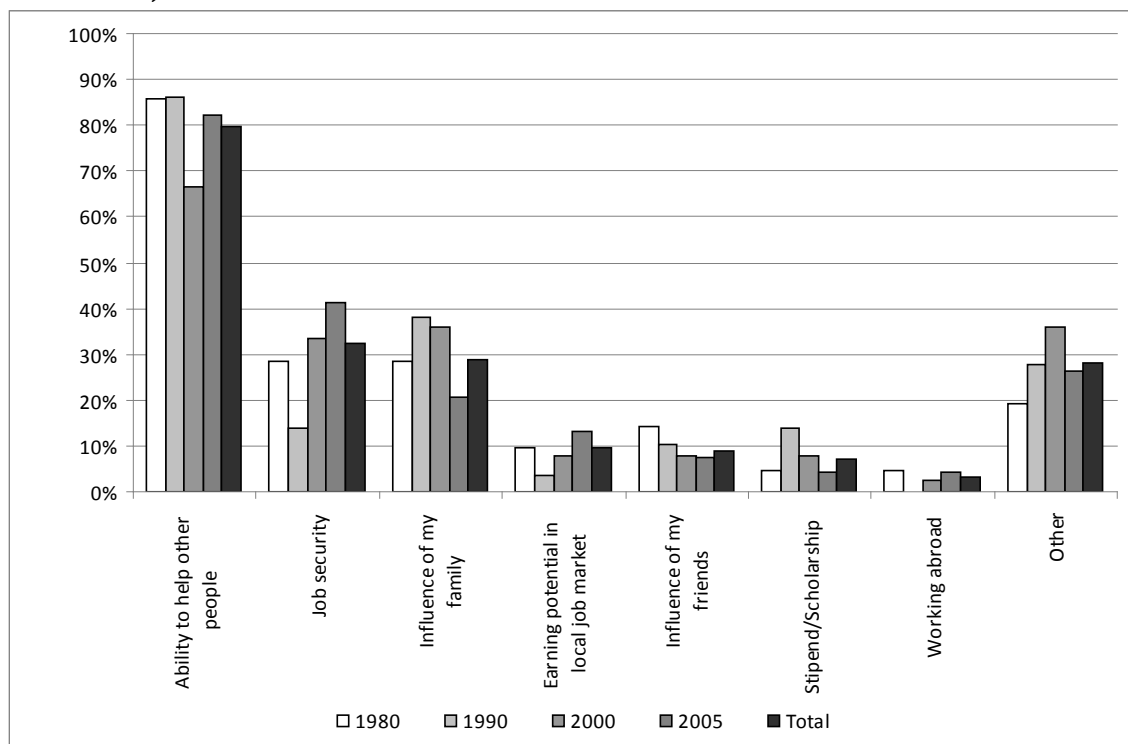
Table E6: Highest Educational Attainment by Parent of RNs from the 1980 and 1990 Cohorts

Class Rank	Jamaica	Abroad	Total
Primary Incomplete	2	1	3
Primary Complete	8	11	19
Secondary Incomplete	1	5	6
Secondary Complete	11	11	22
Total	22	28	50

What are the top two reasons given by the RNs for entering nursing school?

The top two reasons that the RNs gave for entering nursing school were the ability to help other people (79 percent or 125 out of 157 RNs) and job security (32 percent or 51 out of 157 RNs). The chance to work abroad was the reason that was chosen least often (Figure E1).

Figure E1: Top Two Reasons Given for Entering Nursing School (as Percentage of RNs Interviewed)



Income

Are the RNs the primary income earners in their household?

Among non-migrant RNs from all four cohorts, 92 percent contributed to at least half of their household income (Figure E2). Among non-migrant RNs from the 1980 and 1990 cohorts, 95 percent contributed to at least half of their household income. All migrant RNs contributed to at least half of their household income (Figure E3).

Figure E2: Contribution of Individual Income to Household Income by Non-migrant RNs (RNs Interviewed)

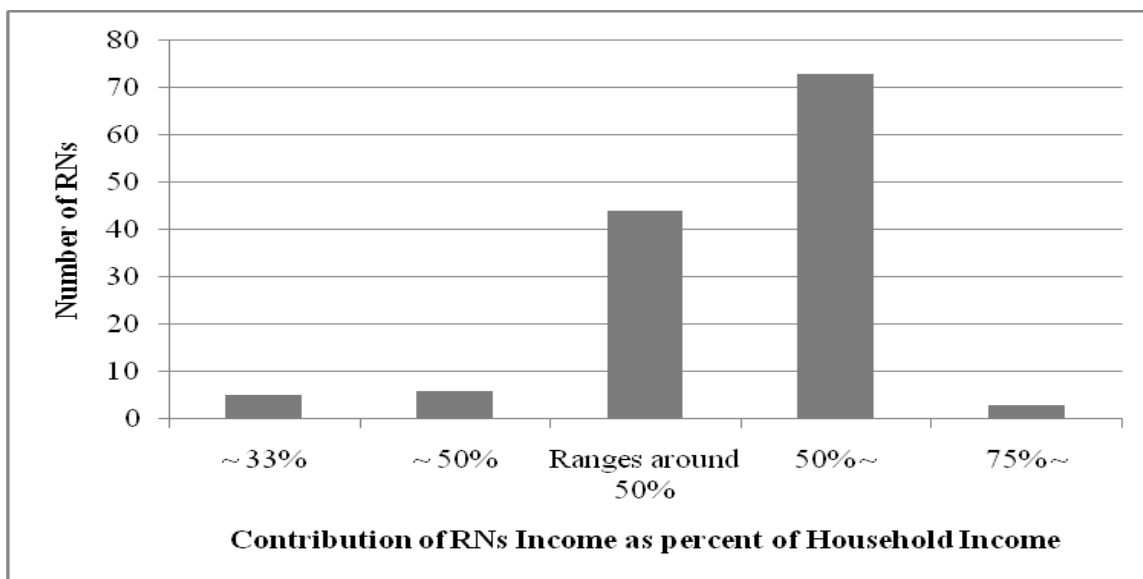
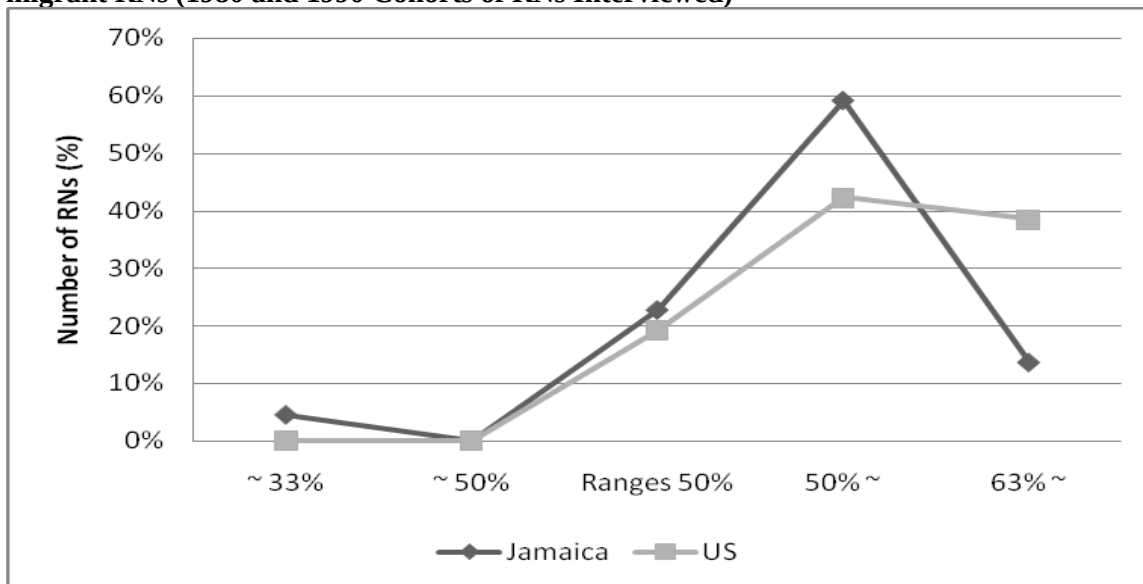


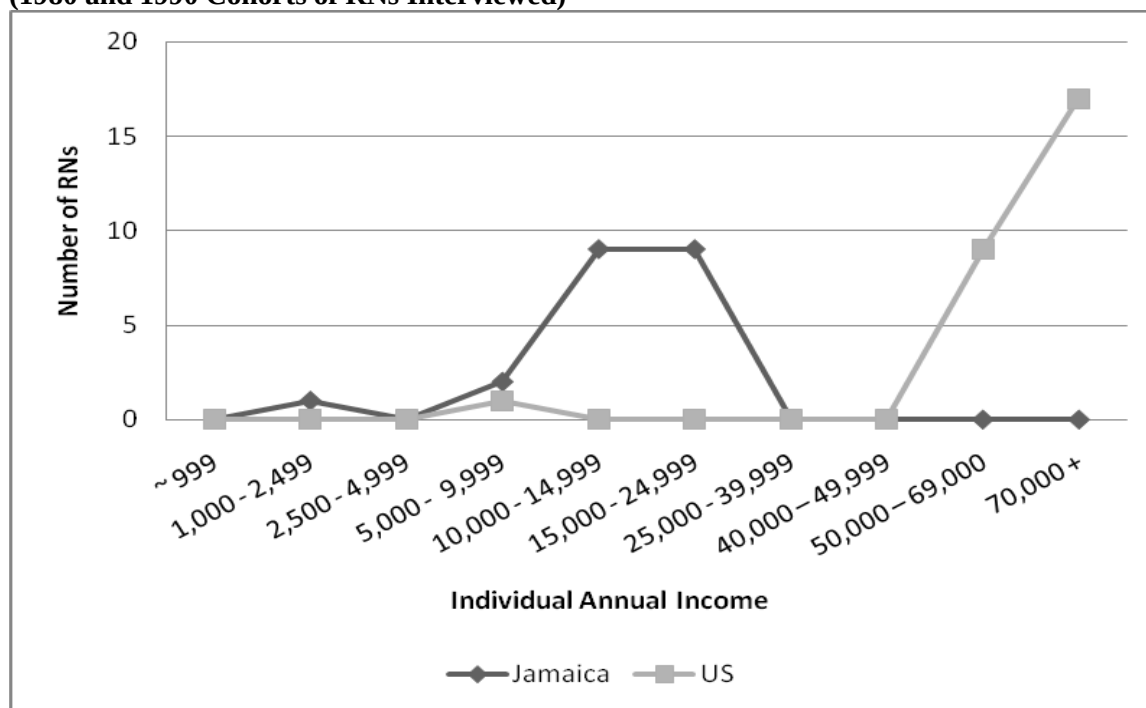
Figure E3: Contribution of Individual Income to Household Income by Migrant and Non-migrant RNs (1980 and 1990 Cohorts of RNs Interviewed)



How do the individual incomes of non-migrant and migrant RNs compare?

Migrant RNs who were working in the US earned higher incomes than non-migrant RNs. Sixty-three percent of migrant RNs who were working in the US earned \$70,000 or more a year. The highest income bracket for the non-migrant RNs was between \$15,000 and \$24,999, and only 41 percent of them had earnings in this range (Figure E4).

Figure E4: Individual Income of Migrant and Non-migrant RNs (1980 and 1990 Cohorts of RNs Interviewed)

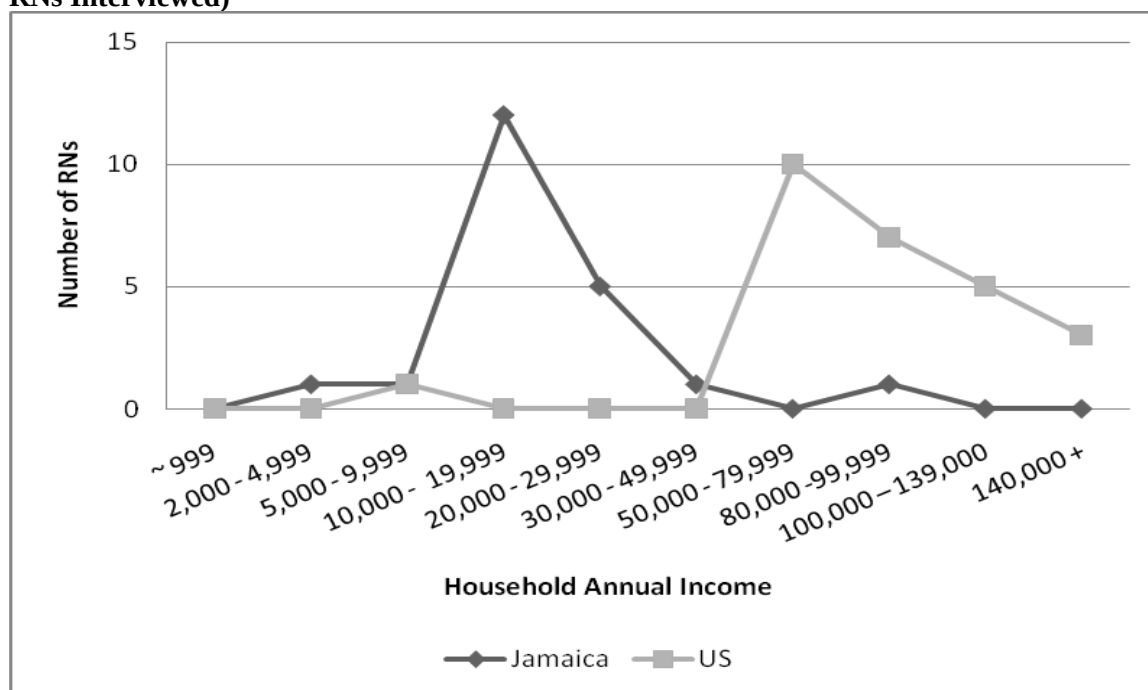


Note: The Jamaican income ranges that were converted into USD are slightly different from the US income ranges, but similar enough for comparison.

How do the individual and household incomes of non-migrant and migrant RNs compare?

The households of migrant RNs who were working in the US had higher overall incomes than the households of non-migrant RNs. Ninety-six percent of the households of migrant RNs had incomes of more than \$50,000 a year, of which 12 percent had incomes of more than \$140,000 a year. In comparison, only one household of a non-migrant RN received over \$50,000 a year. Over half of the households of non-migrant RNs had household incomes in the range of \$10,000 to 19,999 per year (Figure E5).

Figure E5: Household Income of Migrant and Non-migrant RNs (1980 and 1990 Cohorts of RNs Interviewed)



Note: The Jamaican income ranges that were converted into USD are slightly different from the US income ranges but are similar enough for comparison.

Employment

How large is the inactive supply of RNs?

Among the RNs who were interviewed, 97 percent stated that they were working as a nurse, of whom 98 percent were working full time. Only one respondent reported working full time but not as a nurse. The remaining three respondents who were not working as nurses were either retired or studying (Table E7).

Table E7: Employment Status in the Nurse Labor Market (RNs Interviewed)

Employment Status	Do you work as Nurse?		Total
	Yes	No	
Full-time	152	1	153
Part-time	3	0	3
Retired	0	2	2
Studying	0	1	1
Total	155	4	159

How many of the inactive RNs are migrants and non-migrants?

Among the 131 non-migrant RNs, 126 (98 percent) were working full time as nurses, two were working part time as nurses, one was working full time in another profession, one was retired, and one was studying (Table E8). Among the 28 migrant RNs, 26 (93 percent) were working full time as nurses, one was working part time as a nurse, and one was retired (Table E9).

Table E8: Employment Status in the Nurse Labor Market of Non-migrant RNs (Non-Migrant RNs Interviewed)

Employment Status	Do you work as a Nurse?		Total
	Yes	No	
Full time	126	1	127
Part time	2	0	2
Retired	0	1	1
Studying	0	1	1
Total	128	3	131

Table E9: Employment Status in Nurse Labor Market (Migrant RNs Interviewed)

Employment Status	Do you work as Nurse?		Total
	Yes	No	
Full time	26	0	26
Part time	1	0	1
Retired	0	1	1
Studying	0	0	0
Total	27	1	28

Are nurses working more than one job?

Among the RNs who were working full time as a nurse, 9 percent had multiple jobs, of which 82 percent were nursing jobs. Seven percent of non-migrant RNs had multiple jobs compared with 15 percent of migrant RNs. Of those who had multiple jobs, 75 percent of non-migrant RNs were working as nurses in their second job, while all migrant RNs were working as nurses in their second job (Table E10).

Table E10: Migrant and Non-migrant RNs who have Multiple Jobs (RNs Interviewed)

Have multiple Jobs	Home	Abroad	Total
Yes	9 (7%)	4 (15%)	13 (9%)
No	117	22	139
Total	126	26	152
Subtotal with a second Job as a nurse (%)	6 (75%)	3 (100%)	9 (82%)

Education

To what extent did RNs finance their own nursing education?

Among all of the RNs interviewed, 18 percent stated that they had paid for some part of their tuition for nursing school. The percentage of RNs who paid for their own tuition increased with each year of graduation. Only 5 percent of the RNs from the 1980 cohort paid for their education compared with 27 percent of the 2005 cohort. Forty-six percent of all RNs interviewed reported paying for their living expenses while in nursing school. Again, the percentage of RNs who paid their living expenses increased by graduation cohort, from 14 percent of the RNs from the 1980 cohort to 60 percent of the RNs from the 2005 cohort. Almost all RNs reported paying for the materials for nursing school (Table E11). The RNs reported paying an average of \$520 each year for some part of their education and living expenses. There was a substantial difference between the annual amounts paid by the RNs from the 1980 and 1990 cohorts and the amounts paid by the RNs from the 2000 and 2005 cohorts (Table E12).

Table E11: Did you Pay for Tuition for Your Nursing Education? (RNs Interviewed)

Did you pay for...?	1980		1990		2000		2005		Total	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Tuition	1 (5%)	20	4 (13%)	26	4 (11%)	34	19 (27%)	51	28 (18%)	131
Living Expenses	3 (14%)	18	8 (28%)	21	21 (54%)	18	41 (60%)	27	73 (46%)	84
Education Materials	19 (90%)	2	30 (100%)	0	36 (95%)	2	70 (100%)	0	155 (97%)	4

Table E12: Average Annual Amount of Education Costs Paid for by Students at the Time of their Education (RNs Interviewed)

Mean Education Cost Paid by Students (USD)	1980	1990	2000	2005	Total
Mean (SD)	\$91 (\$252)	\$165 (\$375)	\$521 (\$736)	\$736 (\$397)	\$518 (\$460)

How much would RNs have been willing to pay for their nursing education?

In the survey, the RNs were asked what was the maximum amount of tuition that they would have been willing to pay for nursing school per year. They were given three options: 1) out of pocket, 2) with an option to receive a bank loan with a low interest rate and no collateral that would have to be paid back within 10 years after graduation, and 3) with an option to receive the same loan and a guaranteed job in Canada, the UK, or the US. Regardless of their place of residence, RNs reported that they would have been willing to pay a larger portion of their education if there had been the option of a loan and of a guaranteed job in one of the three countries mentioned. Migrant RNs who were working in the US would have been willing to pay out of pocket five times more than non-migrant RNs, seven times more if they had had the option of a loan, and 12 times more if they had had the option of a loan and of a guaranteed job in the one of the three countries. Non-migrant RNs reported that they would have been willing to pay an average of \$1,220 out of pocket, \$1,510 with the option of a loan, and \$1,800 with the option of a loan and of a guaranteed job in Canada, the UK, or the US, whereas the migrant RNs working in the US would have been willing to pay an average of \$5,830 out of pocket, \$10,040 with the option of a loan, and \$21,940 with the option of a loan and a guaranteed job (Table E13 and Figures E6 and E7).

Table E13: Willingness to Pay for Nursing Education (RNs Interviewed)

Country of Residence	WTP (USD)	Loan (USD)	Loan and Job (USD)
Jamaica (SD)	\$1,220 (\$1,050)	\$1,510 (\$1,170)	\$1,800 (\$1,490)
US (SD)	\$5,830 (\$10,390)	\$10,040 (\$12,150)	\$21,940 (\$31,960)

Note: Exchange rate = 73 J\$/USD

Figure E6: Distribution of Willingness to Pay for Nursing Education (Non-migrant RNs Interviewed)

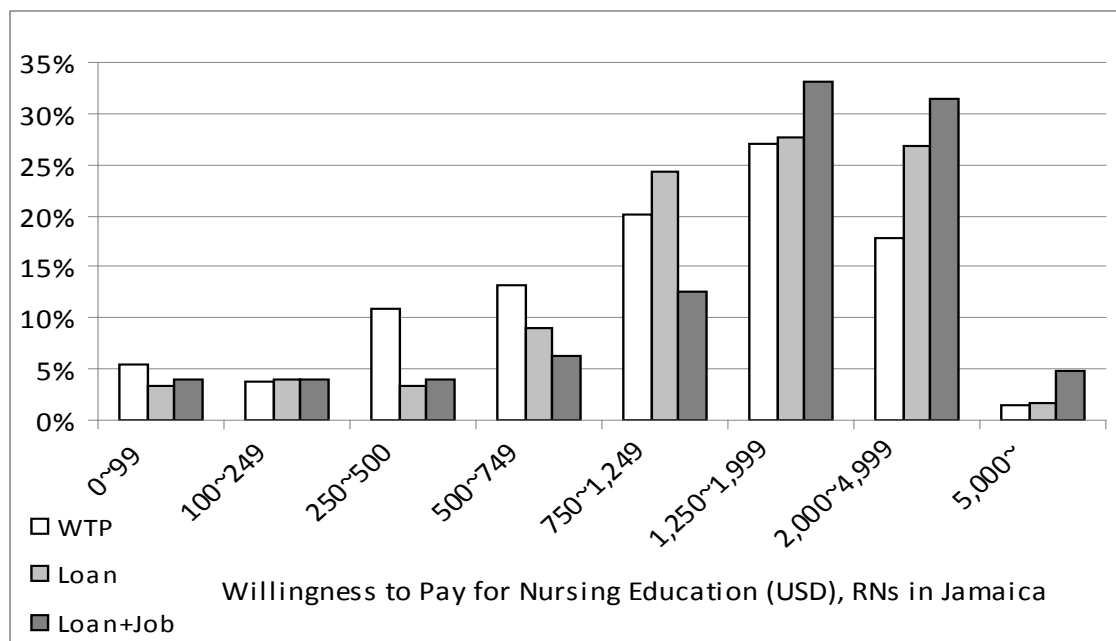
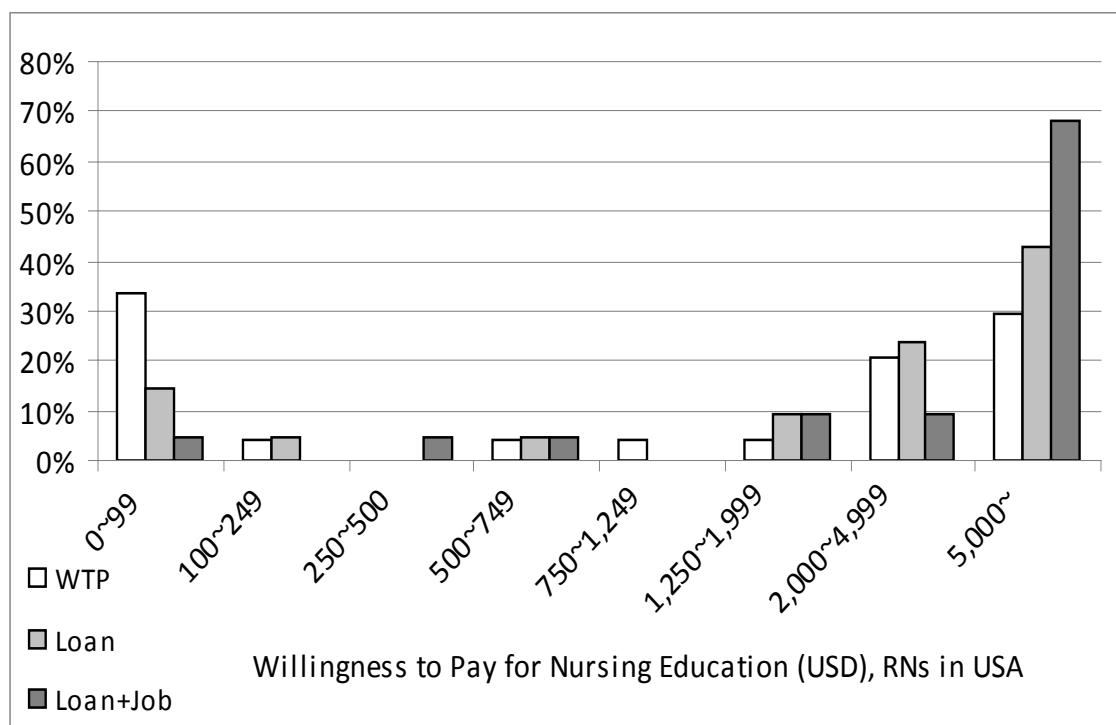


Figure E7: Distribution of Willingness to Pay for Nursing Education (Migrant RNs Interviewed)



After completing the general nursing program, did the RNs continue their education and obtain higher degrees?

Approximately half (53 percent) of the RNs interviewed continued their nursing education and obtained an advanced degree after graduating from the general nursing program. Of the higher degrees obtained, 51 were Associate and Specialist Training degrees, 14 were Bachelor's degrees, and 5 were Master's degrees. The majority of nurses who graduated prior to 2005 have obtained an advanced degree (Table E14). Among the 1980 and 1990 graduation cohort, 93 percent of migrant RNs obtained an advanced degree compared with 96 percent of non-migrant RNs (Table E15).

Table E14: Type of Advanced Degree Obtained by Graduation Cohort (RNs Interviewed)

Advanced Nursing Degree	Year of Graduation				Total
	1980	1990	2000	2005	
None	2 (10%)	1 (3%)	6 (15%)	67 (96%)	76 (48%)
Unspecified	0	3	9	2	14
Associate Degree and Specialist Training	9	17	24	1	51
Bachelor Degree	8	6	0	0	14
Master Degree	2	3	0	0	5
Subtotal with advanced nursing degree (%)	19 (90%)	29 (97%)	33 (85%)	3 (4%)	84 (53%)
Total	21	30	39	70	160

Table E15: Type of Advanced Degree Obtained by Country of Residence (1980 and 1990 Cohorts of RNs interviewed)

Advanced Nursing Degree	Country of Residence		Total
	Jamaica	Abroad	
None	1 (4%)	2 (7%)	3 (6%)
Unspecified	1	2	3
Associate Degree and Specialist Training	15	11	26
Bachelor Degree	3	11	14
Master Degree	3	2	5
Subtotal with advanced nursing degree (%)	22 (96%)	26 (93%)	48 (94%)
Total	23	28	51

How did RNs finance their advanced degree programs?

Fifty-six percent of the RNs stated that scholarships and grants funded their continued education. Twenty-one percent reported paying out of pocket for their continued education. Among the RNs who were trained in Jamaica, 68 percent funded their continued education with scholarships and grants and 14 percent paid out of pocket. Among the RNs who were trained abroad, 44 percent paid out of pocket for their continued education (Table E16).

Table E16: Location of Degree Obtained by Mode of Financing (RNs Interviewed)

Mode of Financing	Location of Degree Obtained		
	Jamaica	Abroad	Total
Scholarships/Grants	42 (68%)	3 (17%)	45 (56%)
Self	9 (14%)	8 (44%)	17 (21%)
Other	3 (5%)	6 (33%)	9 (11%)
Bonded by Government	7 (11%)	0 (0%)	7 (9%)
Bank Loan	0 (0%)	1 (6%)	1 (1%)
Spouse	1 (2%)	0 (0%)	1 (1%)
Total	62	18	80

How long after graduating from the general nursing program did the RNs obtain their advanced degrees?

Among the 1980 cohort, 68 percent of those who continued their education and obtained higher degrees did so 15 years or more after they graduated from the general nursing program. Even among the 1990 cohort, approximately 26 percent of those who obtained higher degrees waited 15 years or more to do so. In the 2000 cohort, 80 percent of the graduates continued their education, of whom all did so within eight years of graduating. Also, only three out of the 70 RNs who graduated in 2005 had continued their education by the time of the survey (Table E17).

Table E17: Number of Years after Graduation that Nurses Obtained their Additional Education/Training (RNs Interviewed)

Years	1980	1990	2000	2005	Total
within 5 yrs	0	2	5	3	10
5 to 9 yrs	1	9	27	0	37
10 to 14 yrs	5	9	0	0	14
15 yrs or more	13	7	0	0	20
Total	19	27	32	3	81

Migration

Are there any differences between non-migrant and migrant RNs in terms of how they ranked themselves in their class?

Forty-five percent of non-migrant RNs said that they were in the top 10 percent of their class, while 67 percent of migrant RNs said that they were in the top 10 percent. No one claimed to be in the bottom 50 percent of their class (Table E18).

Table E18: Class Rank of Non-Migrant and Migrant RNs (1980 and 1990 Cohorts of RNs Interviewed)

Class Rank	Non-Migrant	Migrant	Total
Top 10%	10	18	28
Top 30%	8	8	16
Top 50%	4	1	5
Bottom 50%	0	0	0
Total	22	27	49

Are there any differences between non-migrant and migrant RNs in terms of their marital status?

Of the RNs from the 1980 cohort, 67 percent of non-migrant RNs were married compared with 53 percent of the migrant RNs. The same trend was evident among the 1990 cohort, in that 59 percent of the RNs who were living in Jamaica were married, while 54 percent of migrant RNs were married (Table E19).

Table E19: Percentage of Non-migrant and Migrant RNs who are Married (1980 and 1990 Cohorts of RNs Interviewed)

Graduation Year	% Married	
	Non-Migrant	Migrant
1980	67%	53%
1990	59%	54%

Are there any differences between non-migrant and migrant RNs in terms of the percentage who had children before graduation?

Of those from the 1980 cohort, 33 percent of non-migrant RNs had a child before graduating compared with 27 percent of migrant RNs. Of those from the 1990 cohort, 6 percent of the non-migrant RNs had a child before graduating, whereas no migrant RN had a child before graduating (Table E20).

Table E20: Percentage of Non-migrant and Migrant RNs who had a Child before Graduation (1980 and 1990 Cohorts of RNs Interviewed)

Graduation Year	% with Children Before Graduation	
	Non-Migrant	Migrant
1980	33%	27%
1990	6%	0%

How many years did the RNs work in Jamaica before migrating?

The migrant RNs who graduated in 1980 worked in Jamaica for an average of six years before migrating to the US. The migrant RNs who graduated in 1990 they worked in Jamaica for an average of almost 10 years before moving to the US. No RNs from the 2000 and 2005 cohorts were living abroad at the time of the survey (Table E21).

Table E21: Number of Years Working in Jamaica (RNs Interviewed)

Graduation Year	Current Residence		
	Jamaica	Bermuda	US
Years Worked as a Nurse at Home			
1980	22.8	27.0	5.8
1990	16.1		9.6
2000	6.8		
2005	2.0		

Did the RNs migrate on a permanent or a temporary basis?

Of the RNs who had ever lived abroad, did they work and if so in what professions?

Of the 126 RNs who were living in Jamaica at the time of the interview, only six RNs (5 percent) reported ever living abroad (Table E22). Of these RNs, three RNs identified the US as the country in which they had lived the longest (an average of eight years) (Tables E23 and E24). Two-thirds of the nurses who had ever lived abroad reported currently working in the US, and they all worked as nurses (Tables E25 and E26).

Of the RNs interviewed who were living abroad at the time of the interview, 27 lived in the US and one in Bermuda (Tables E22 and E25). On average, these RNs had lived in the US for over 15 years. While living in the US, they had all worked as nurses (an average of 15.1 years working as a nurse) (Table E27).

Table E22: Ever Lived Abroad (RNs Interviewed)

Ever lived abroad?	Country of Residence			Total
	Jamaica	Bermuda	USA	
No	120	0	0	120
Yes	6	1	27	34
Total	126	1	27	154

Note: Seven responses missing from the total number of RNs who were interviewed.

Table E23: Foreign Country Lived in the Longest (RNs Who Had Ever Lived Abroad)

Country lived in abroad the longest	Country of Residence			Total
	Jamaica	Bermuda	USA	
ES CARICOM	3	1	0	4
UK	0	0	3	3
USA	3	0	24	27
Total	6	1	27	34

Table E24: Average Number of Years Lived Abroad (RNs Who Had Ever Lived Abroad)

Country lived in abroad the longest	Current Country of Residence			Years Lived Abroad
	Jamaica	Bermuda	USA	
ES CARICOM	2.0	10.0		
UK			4.8	
USA	8.0		15.3	

Table E25: Worked Abroad (RNs Who Had Ever Lived Abroad)

Worked Abroad?	Country of Residence			Total
	Jamaica	Bermuda	USA	
				2
Yes	4	1	27	32
Total	6	1	27	34

Table E26: Worked as Nurse Abroad (RNs Who Had Ever Lived Abroad)

Worked as a Nurse Abroad?	Country of Residence			Total
	Jamaica	Bermuda	USA	
No	0	0	0	0
Yes	4	1	27	32
Total	4	1	27	32

Table E27: Average Number of Years Worked as a Nurse Abroad (RNs Who Had Ever Lived Abroad)

Country	Country of Residence		
	Jamaica	Bermuda	USA
Years Worked Abroad as a Nurse			
ES CARICOM	1.0	10.0	
UK			4.8
USA	8.0		15.1

Did the migrant nurses know anyone in their destination country before they migrated?

Eighty-eight percent of the RNs who had ever lived abroad knew at least one person living in their destination country before migrating. Approximately 90 percent of the RNs who had migrated to the US knew at least one person living in the area before migrating (Table E28). The majority of RNs (80 percent) migrated either to Florida or New York (Table E29).

Table E28: Existence of any Contact in Destination Country Prior to Migration (RNs Who Had Ever Lived Abroad)

Country lived abroad	Did you know at least one person in the destination country before migrating?		
	No	Yes	Total
ES CARICOM	1	3	4
UK	0	3	3
USA	3	24	27
Total	4	30	34

Table E29: US State Lived In (RNs Who Had Ever Lived Abroad)

US State	Number of RNs
Florida	9
New Jersey	1
New York	11
North Carolina	1
Ohio	1
Texas	1
Virginia	1
Total	25

What was their rationale for migrating? How did salaries, career development prospects, and better education opportunities for their children influence their decision to migrate?

Ninety-four percent of the RNs who had ever lived abroad stated that earning a better salary was one of the reasons why they chose to migrate, while 81 percent reported that better work and career development opportunities were important factors in their decision to migrate. Sixty percent of the RNs who had ever lived abroad stated that providing a better education for their children was an important reason why they migrated (Table E30).

Table E30: Rationale for Emigration (RNs Who Had Ever Lived Abroad)

Reasons Given for Emigration	Not Important	Important	Total
Better Salary	2 (6%)	29 (94%)	31
Better career development and work opportunity	6 (19%)	25 (81%)	31
Better work and career development opportunities	12 (40%)	18 (60%)	30

Do the RNs who have never lived abroad intend to migrate? What are their reasons for not migrating?

Of the nurses who have never lived abroad, 81 percent reported that they had considered migrating. Of the 2000 and 2005 nurse cohorts who were in bonding scheme, over 80 percent of both cohorts reported that they had considered migrating (Table E31).

Table E31: RNs in Jamaica Who Have Considered Migrating (RNs Who Had Never Lived Abroad)

Graduation Cohort	Consider Migration?		Total
	Yes	No	
1980	4 (80%)	1	5
1990	9 (75%)	3	12
2000	30 (83%)	6	36
2005	53 (80%)	13	66
Total	96 (81%)	23	119

The most common answer given by RNs to the question about why they had not yet migrated or did not intend to migrate was their limited knowledge about migration opportunities (45 percent). . Other answers given were that they did not want to be separated from their family (17 percent) and that they were currently bonded by the government to work in Jamaica (13 percent). Only one RN stated that he or she had no interest in migrating (Table E32).

Table E32: Reasons for Remaining in Jamaica (RNs Who Had Never Lived Abroad)

Reasons for Remaining in the Home Country	Total
Have no knowledge about opportunities to migrate	64 (53%)
Do not want to leave family	16 (13%)
Others	13 (11%)
Bonded	12 (10%)
Like my home country	9 (8%)
Want to gain more experience before migrating	3 (2%)
Like my job	2 (2%)
Generally not interested in migrating	1 (1%)
Total	120

Do the migrant RNs intend to return home? For those who said that they would return, would they work as nurses in Jamaica?

Of those RNs living abroad, 71 percent said that they intended to return home (Table E33). Of those who said that they intended to return, almost half reported that they would not work as a nurse in Jamaica. The main reasons given for wanting to return home were: 1) to contribute to the health sector at home; 2) to retire at home; and 3) family obligations. The main reasons given for not wanting to return home were: 1) high levels of crime and concern for safety; 2) poor working conditions; and 3) poor standards of living for retirement (Table E34).

Table E33: Intention of Returning Home (RNs Who Are Living Abroad At the Time of Interview)

Country of Residence	Do you intend to go back your home country?		
	Yes	No	Total
Bermuda	1 (100%)	0	1
US	16 (70%)	7	23
Total	17 (71%)	7	24

Table E34: Intention of Returning Home and Working as a Nurse (Migrant RNs Who Intend to Return Home)

Country of Residence	Do you intend to work as a nurse upon return?		
	Yes	No	Total
Bermuda	1 (100%)	0	1
US	8 (50%)	8	16
Total	9 (56%)	8	16

Do the migrant RNs send remittances?

Among the migrant RNs, 79 percent stated that they sent home remittances, which on average amounted to \$2,800 a year (Table E35 and Table E36).

Table E35: Number of Nurses Abroad who Send Remittances (Migrant RNs)

Graduation Cohort	Send Remittances?		
	Yes	No	Total
1980	11 (73%)	4	15
1990	11 (85%)	2	13
2000	0	0	0
2005	0	0	0
Total	22 (79%)	6	28

Note: Those who send money to their own saving account are not considered to be sending remittances.

Table E36: The Average Amount of Remittances Sent Home Annually (Migrant RNs)

Graduation Cohort	Amount of Annual Remittances(USD)
1980	\$2,600
1990	\$2,900
2000	--
2005	--

Satisfaction

Are the RNs satisfied with their current job in terms of salary, work environment, and work and career development opportunities?

Are the migrant RNs more satisfied with their salaries, work environment, and work and career development opportunities than the non-migrant RNs?

In terms of salary, 53 percent of non-migrant RNs stated that they were very dissatisfied, whereas no migrant RN stated that they were very dissatisfied. No non-migrant RNs stated that they were very satisfied with their current salary, whereas 19 percent of migrant RNs stated that they were very satisfied (Table E37).

In terms of work environment, 16 percent of non-migrant RNs stated that they were very dissatisfied, and no migrant RN stated that they were very dissatisfied. Three percent of non-migrant RNs stated that they were very satisfied with their work environment, whereas 15 percent of migrant RNs said that they were very satisfied. The work environment was defined in the survey by such factors as the number of patients per

nurse, the number of hours worked per week, the safety of the work environment, and being respected within their work community (Table E37).

In terms of work and career development opportunities, 7 percent of non-migrant RNs stated that they were very dissatisfied, and no migrant RN stated that they were very dissatisfied. Seven percent of non-migrant RNs stated that they were very satisfied with the work and career development opportunities at their current job, whereas far more - 48 percent - migrant RNs stated that they were very satisfied (Table E37).

Table E37: Satisfaction with Salary, Work Environment, and Work and Career Development Opportunities by Country of Residence (RNs Interviewed)

	Country of Residence							
	Jamaica				Abroad			
	VS	S	D	VD	VS	S	D	VD
Salary	0 (0%)	8 (6%)	52 (41%)	68 (53%)	5 (19%)	18 (66%)	4 (15%)	0 (0%)
Work Environment	4 (3%)	52 (40%)	53 (41%)	20 (16%)	4 (15%)	19 (70%)	4 (15%)	0 (0%)
Work and Career Development Opportunities	9 (7%)	47 (37%)	63 (49%)	9 (7%)	13 (48%)	10 (37%)	4 (15%)	0 (0%)

Note: VS= Very Satisfied, S= Satisfied, D = Dissatisfied, and VD= Very Dissatisfied

Were migrant RNs satisfied with their job prior to migrating?

In terms of salary, of those who are living abroad at the time of the interview, 91 percent reported being satisfied with their salaries that they were earning at their current job abroad, and only 32 percent said that they were satisfied with the salary that they earned at their last job prior to migrating (Table E38).

In terms of work environment, of those who were living abroad at the time of the interview, 86 percent reported being satisfied with the work environment of their current job abroad, whereas only 55 percent of them said that they had been satisfied with the work environment of their job prior to migrating (Table E38).

In terms of work and career opportunities, of those who were living abroad, 91 percent reported being satisfied with the work and career development opportunities available at their current job abroad whereas just 50 percent of them were satisfied with the opportunities available at the job that they held prior to migrating (Table E38).

Table E38: Satisfaction with Salary Before and After Migration (RNs Interviewed)

	Before Migration		After Migration	
	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Salary	7 (32%)	15 (68%)	20 (91%)	2 (9%)
Work Environment	12 (55%)	10 (45%)	19 (86%)	3 (14%)
Work and Career Development Opportunities	11 (50%)	11 (50%)	20 (91%)	2 (9%)

REFERENCES

- Aiken LH, Buchan J, Sochalski J, Nichols B, and Powell M. Trends in International Nurse Migration. *Health Affairs*, 2004, 23(3); 69-77.
- American Nurse Association (ANA). *Nursing Shortage: Immigration and Nursing Workforce (Nursing's Legislative and Regulatory Initiatives for the 109th Congress)*. 2005.
www.nursingworld.org/gova/federal/legis/109/shortage/shortageall.pdf, 8/23/07.
- Arends-Kuenning M. "The Balance of care: trends in the wages and employment of immigrant nurses in the US between 1990 and 2000". *Globalizations*, 2006, 3(3):333-348
- Bach S. *International migration of health workers: labour and social issues*, 2003. International Labour Office, Geneva.
- Blom, A., & Hobbs, C. (2008). *School and Work in the Eastern Caribbean: Does the Education System Adequately Prepare Youth for the Global Economy?* Washington, D.C.: The World Bank.
- Border & Immigration Agency. *Supervised Practice nurses and midwives*.
<http://www.ind.homeoffice.gov.uk/applying/generalcaseworking/nursesandmidwives>, 8/23/07.
- Buchan J. *International recruitment of nurses: United Kingdom case study*, 2002. Queen Margarete University College, Edinburgh.
- Buchan, J. (2002). *Policy Approaches to Managing The Migration of Nurses*. Unpublished Work. Washington, D.C.: The World Bank.
- Buchan, J. (2008). *Global nursing shortages: Are often a symptom of wider health system or societal ailments*. *BMJ: British Medical Journal*, 324(7340), 751.
- Canadian Institute for Health Information (CIHI) (2007). Canadian Nursing Professions Database.
- Canadian Nurse Association (2002). *Planning for the Future: Nursing Human Resource Projections*. Ottawa: CAN.
- Caribbean Community (CARICOM) Secretariat. (2008). History of the Caribbean Community (CARICOM). Retrieved May 23, 2008, from
<http://www.caricom.org/jsp/community/history.jsp?menu=community>

Caribbean Community (CARICOM) Secretariat. (2008). The CARICOM Single Market and Economy (CSME). Retrieved May 23, 2008, from http://www.caricom.org/jsp/single_market/single_market_index.jsp?menu=csme

CGFNS. Visa Screen® Program. 2006. <http://www.cgfns.org/sections/programs/vs/>, 8/23/07.

Clemens, M. (2007). Do visas kill? Health effects of African health professional emigration? Working Paper 114, Center for Global Development, Washington, DC.

Clemens, M., & Pettersson, G. (2008). New data on African health professionals abroad. *Human Resources for Health*, 6.

Dawson L. (2005). *Preliminary Assessment of Policy Options for the Managed Temporary Movement of Caribbean Nurses to Canada, the United Kingdom, and the United States*. Center for Trade Policy and Law, Carleton University, Ottawa.

Dawson L. *A managed temporary movement program for nurses from the Caribbean to Canada: The Short (but interesting) Life of a Policy Advocacy Proposal*, 2006. Center for Trade Policy and Law, Carleton University, Ottawa.

Department of Labor (DOL), United States. *H-1C Nurses in Disadvantaged Areas*. 2004. <http://www.foreignlaborcert.doleta.gov/h-1c.cfm>, 8/22/07.

Docquier, F., & Bhargava, A. (2006). Medical brain drain-A New Panel Data Set on Physicians' Emigration Rates (1991-2004). *Report, World Bank, Washington DC*.

Dovlo, D. (2005). Wastage in the health workforce: some perspectives from African countries. *Human Resources for Health*, 3(1), 6.

Garner, C. (2007). The development and challenges of an international nursing workforce. *Nurse Leader*, 5(2), 48-51.

Hardill I, and S MacDonald. "Skilled International Migration: The Experience of Nurses in the UK". *Regional Studies*, 2000, 34(7): 681-692.

Health Match BC. *Recruiting Health Professionals for British Columbia*. Available at http://www.healthmatchbc.org/hmbc_employers.asp?pageid=633, 8/22/07.

Hennis, A., & Fraser, H. S. (2004). Diabetes in the English-speaking Caribbean (Special report). *Revista Panamericana de Salud Pública/Pan American Journal of Public Health*, 15(2), 90-93.

Home Office. *A Points-Based System: Making Migration Work for Britain*. 2006. http://www.fco.gov.uk/Files/kfile/Command_Paper1.pdf, 8/23/07.

Home Office. *New points-based immigration system starts next year*. 2007.
<http://www.homeoffice.gov.uk/about-us/news/points-based-system>, 8/23/07.

HRSA. (2002). *Projected Supply, Demand and Shortages of Registered Nurses: 2000-2020*: US Department of Health and Human Services, Health Resources and Service Administration;

Integrated Public Use Microdata Series (IPUMS): Version 3.0 [Machine-readable database]. Minneapolis, MS: Minnesota Population Center [producer and distributor], 2007.

International Commission on Healthcare Professions (ICHP). *CGFNS/ICHP Visascreen®: Visa Credentials Assessment Program, 2007 Edition. Applicant Handbook*. 2007a.

International Commission on Healthcare Professions (ICHP). *CGFNS Certification Program for Registered Nurses, 2007 Edition. Applicant Handbook*. 2007b.

Jeans ME, Hadley F, Green J and Da Prat C. *Navigating to become a Nurse in Canada: Assessment of international nurse applicants*. 2005. Canadian Nurse Association.

Joint United Nations Programme on HIV and AIDS (UNAIDS). (2007). *Keeping score : AIDS responses in the Caribbean : a consolidated analysis based on Caribbean reports submitted to the United Nations General Assembly Special Session on HIV and AIDS, 2006*.

Kurowski C (2004). Global responsibilities; in: *Human Resources for Health: Overcoming the crisis*, Joint Learning Initiative

Marchal, B., & Kegels, G. (2003). Health workforce imbalances in times of globalization: brain drain or professional mobility? *Int J Health Plann Mgmt*, 18, S89-S101.

Mathauer, I., & Imhoff, I. (2006). Health worker motivation in Africa: the role of non-financial incentives and human resource management tools. *Human Resources for Health*, 4(1), 24.

National Council of State Boards of Nursing (NCSBN) (2006). *Nurse Licensure and NCLEX Examination Statistics*. Retrieved May 18, 2007, from <http://www.ncsbn.org/1236.htm>.

NCSBN. *Alternative Regulatory Nurse Licensure Models: NCSBN Reaffirms Support for Single State and Mutual Recognition Models of State Nurse Licensure*. 2002.

NCSBN. *Multi-state Licensure Compact Impact Evaluation: Final Report*. 2003, Available <https://www.ncsbn.org/CompactSurvey.pdf>, 8/22/07.

NCSBN. *Participating States in the NLC*. 2007. Available <https://www.ncsbn.org/158.htm>, 8/23/07.

Neal SL. Hiring Foreign Nurses in the USA. *International Journal of Nursing Practice*, 2002, 8: 173-174.

NLCA. *Frequently asked questions regarding the National Council of State Boards of Nursing (NCSBN) Nursing Licensure Compact (NLC)*, 2004.

NHS Employers. *International nursing recruitment*. Available <http://www.nhsemployers.org/workforce/workforce-527.cfm/text/1>, 3/27/07.

Nursing & Midwifery Council (NMC). *Standards of proficiency for pre-registration nursing education*, 2004. NMC, London.

Nursing & Midwifery Council (NMC). *Recruitments for overseas nurses' programme leading to registration in the UK*, 2005. NMC, London. Available at <http://www.ukcc.org.uk/aFrameDisplay.aspx?DocumentID=444>, 8/22/07

Nursing & Midwifery Council (NMC). (2005). *Statistical Analysis of the Register, 1 April 2004 to 31 March 2005*.

Nursing & Midwifery Council (NMC). *Registering as a nurse or midwife in the United Kingdom: for applicants from outside the European Economic Area*, 2007. NMC, London.

Nursing & Midwifery Council (NMC) (a). *Overseas Nurse Registration*. Available <http://www.nmc-uk.org/aArticle.aspx?ArticleID=1653>, 8/22/07

Nursing & Midwifery Council (NMC) (b). *Q&A – Practical issues to ensure efficient programme delivery*. Available <http://www.nmc-uk.org/aDisplayDocument.aspx?DocumentID=655>, 8/22/07

OECD (2004). *Trends in international migration: annual report/OECD*. 2003 edition. OECD, Paris.

OECD (2005). *Tackling Nurse Shortages in OECD Countries*: OECD. Peter707772324

OECD (2007). *International Migration Outlook 2007*, OECD, Paris.

Office for National Statistics (ONS), UK. (2008). 2001 UK Census Commissioned Table CO857 and CO903 (Received May 14, 2008). Crown copyright.

Preker, A., Vujicic, M., Dukhan, Y., Ly, C., Beciu, H., & Materu, P. (2008). *Scaling Up Health Professional Education: Opportunities and Challenges for Africa. Background paper for Task Force on Scaling Up Health Education*. Geneva: Global Health Workforce Alliance.

Reid, U. (2000). Regional Examination for Nurse Registration Commonwealth Caribbean. *International Nursing Review*, 47(3), 174-183.

Salmon M, Yan J, Hewitt H, Guisinger V (2007). Managed Migration: The Caribbean Approach to Addressing Nursing Services Capacity. *Health Services Research*, 42 (3) 1354-1372

Shusterman C. Get to know immigration guidelines. *Nursing Management*, 2002, 33(9): 10,21.

Simoens S, Villeneuve M, Hurst J. *Tackling Nurse Shortages in OECD Countries*. 2005. OCED Health Working Papers No.19. Paris, OECD. Available <http://www.oecd.org/dataoecd/11/10/34571365.pdf>, 2/14/0

Statistics Canada. Census of Canada, 2001 [computer file]. Ottawa, Ont.: Statistic Canada [producer and distributor], 2007.

Stolk et al (2007). *Student Retention in Higher Education Courses: International Comparison*. Rand Europe.

Thomas-Hope E. *Skilled Labour Migration from Developing Countries: Study on the Caribbean Region*, 2002. International Labour Organization, Geneva.

Tsuji, BET. PNP Introduction. http://www.immigratingtocanada.com/immigration_provincial_introduction.html, 8/23/07.

United States Citizenship and Immigration Services (USCIS). *Interoffice Memorandum: Public Law 109-423 – Reauthorization of H-1C Program under the Nursing Relief for Disadvantaged Areas Act of 2005*. 2006. Washington DC. <http://www.uscis.gov/files/pressrelease/H1CReauth122606.pdf>, 8/23/07.

United States Citizenship and Immigration Services (USCIS). *Temporary Benefits Employment Categories and Required Documentation*. <http://www.uscis.gov/portal/site/uscis/template.PRINT/menuitem.5af9bb95919f35e66f614176543f6d1a/?vgnextoid=229c6138f898d010VgnVCM10000048f3d6a1RCRD&vgnnextchannel=91919c7755cb9010VgnVCM10000045f3d6a1RCRD>, 8/23/07.

Vancouver Coastal Health. *Career: International Applicants*. <http://www.vch.ca/careers/international/here.html>, 8/23/07.

Vujicic, M. Zurn, P. Diallo, K. Adams, O. and Poz, M. The role of wages in the migration of health care professionals from developing countries. *Human Resources for Health* 2004, 2:3.

Vujicic, M., & Evans, R. (2005). The Impact of Deficit Reduction on the Nursing Labour Market in Canada: Unintended Consequences of Fiscal Reform. *Applied Health Economics and Health Policy*, 4(2), 99-110.

WORKgateways. Work Visas UK. <http://www.workgateways.com/working-uk-visas.html>, 8/23/07.