CORE DATA

HUMAN RESOURCES FOR HEALTH

Stocks and Flows - Education - Management

EASTERN CARIBBEAN COUNTRIES: DOMINICA, GRENADA, SAINT LUCIA, AND SAINT VINCENT AND THE GRENADINES

2009

Tracking
Regional Goals
for Human
Resources
for Health

A Shared Commitment

Pan American Health Organization
Regional Office of the World Health Organization

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WASHINGTON, DC
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PROJECT OF HUMAN RESOURCES FOR HEALTH (HR)
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Executive Summary

In its 2006 annual report, the World Health Organization reported on Human Resources for Health (HRH) among its member states. For many Caribbean nations, there were little data available. To improve this paucity of information, the Pan-American Health Organization (PAHO) has partnered with the Ministries of Health of four eastern Caribbean countries (Dominica, Saint Lucia, Saint Vincent and the Grenadines and Grenada) to support the systematic collection and analysis of HRH data in these countries. This report is the result of this partnership, and summarises data from, Dominica, Saint Lucia, Saint Vincent and the Grenadines and Grenada. In November 2007 a project Core Data Set was collectively defined through consensus among the participating Caribbean countries, and final phase data collection in the four ECC started in October 2009. The core dataset includes quantitative and descriptive data items pertaining to human resources in health (HRH) and their training.

Data were collected from a range of data sources, including census information, personnel and other administrative databases, and professional registration data. This report describes the general considerations and specific methodologies followed in assembling the ECC HRH data set. Details of this new national resource are described, and summary statistics present an overview of the health workforce in the ECC. The report focuses on the number of healthcare workers per 10,000 population.

Dominica	68 doctors, nurses & midwives/10,000 77 doctors, nurses, midwives & nursing assistants/10,000
Grenada	52 doctors, nurses & midwives/10,000
Saint Lucia	26 doctors, nurses & midwives/10,000 29 doctors, nurses, midwives & nursing assistants/10,000
Saint Vincent and the Grenadines	31 doctors, nurses & midwives/10,000 51 doctors, nurses, midwives & nursing assistants/10,000

Key recommendations include:

1. Providing targeted training to improve quality of the data management by key data sources.

2. Prioritising core data set items to ensure that that the collection of information vital to HRH planning and policy development is sustainable.

3. Focus on developing and using the current Government personnel software (Smart-Stream) as a tool for the continued collection of information on HRH into the future.

4. Ensure robust professional registration process to enable determination of the size of the private sector HRH workforce.

5. Standardising the procedures of this cross-country data collection initiative (for data management, data analysis and “databasing”) to ensure that the data obtained are comparable, and easily updated by others in the future.

6. Ensure robust professional registration process.

1. Introduction

1.1. Background and Report Structure

Background

In its 2006 annual report, the World Health Organization (WHO) reported on Human Resources for Health (HRH) among its 192 member states[1]. This report recognized widely varying data availability, with many non-OECD nations having limited access to information on their health workforce. National data were collected as part of this effort, using three approaches: WHO national surveys conducted through its regional and country offices, contacting various national administrative sources, or "compiled from a previous version of the WHO's Global database on the health workforce"[1]. Data from many Caribbean nations[2] were collected using this third approach, which obtained very little detail, with information that had not been updated for a number of years.

To improve this paucity of information, the Human Resources for Health Unit of the Pan-American Health Organization (PAHO) has partnered with the Ministries of Health in the Eastern Caribbean (EC) to support the systematic collection and country-level analysis of HRH data as part of the Region's 10-year commitment to health workforce development. There are nine Eastern Caribbean nations involved in this data collection process which is proceeding in three work phases: phase 1 included Barbados and has been completed, phase 2 includes four Eastern Caribbean Countries (ECC): Dominica, Grenada, Saint Lucia, and Saint Vincent and the Grenadines and is the subject of this report. Phase 3 will include Antigua and Barbuda, Saint Kitts and Nevis, Monserrat, and the British Virgin Islands. In addition, this PAHO data collection programme has been extended to other countries in the Caribbean Region: Belize, Jamaica, and Trinidad & Tobago.

It is expected that these data collection exercises will form the basis for a regional HRH database to follow trends in human resources for health through time. In turn, this resource can help to inform priorities and sustainable policies for enabling a healthcare workforce tailored to the needs of the individual countries and the Region as a whole.

This report from the Barbados/ECC data collection team, presents data from four Eastern Caribbean (EC) countries: Dominica, Grenada, Saint Lucia, and Saint Vincent and the Grenadines.

1. World Health Organization. The World Health Report 2006: working together for health. WHO Press, Geneva.
2. Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Guyana, Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago.

Report Structure

A project core dataset was collectively defined through consensus among the participating Caribbean countries at the Data Management Project Orientation Meeting in Bridgetown, Barbados in September 2007 (see Appendix 1). This core dataset has been subdivided into four data subsets to facilitate the collection and presentation of collected data:

- **Data Subset 1.** Human Resources in Health (HRH) - Quantitative data (Item 1)
- **Data Subset 2.** Human Resources in Health (HRH) - Descriptive data (Item 2b -2k)
- **Data Subset 3.** Education system related to HRH - Quantitative data (Item 3a-3m)
- **Data Subset 4.** Education system related to HRH - Descriptive data (Item 2a, 3n-3y)

To facilitate management of the data collection once the preparatory work had been completed, the project was divided into the following four phases:

- **Phase 1.** Identification of information sources
- **Phase 2.** Identification of information
- **Phase 3.** Data collection
- **Phase 4.** Data analysis

The activities and outcomes in each phase will be described during the course of this report. Phases 1, 2, and 3 are reported in chapter 2 (Methods), and phase 4 is described in chapter 3 to 6 (one results chapter per country). Each results chapter has been divided into the four data subsets (HRH – Quantitative, HRH – Descriptive, Education – Quantitative, Education – Descriptive).

1.2. Aims of the Project in the Eastern Caribbean

The overall aims of the PAHO Data Management Project for Human Resources in Health are (A) to assess and analyze human resources in health, and (B) to establish information systems and networks for knowledge exchange that are sustainable. The specific aim of the Eastern Caribbean (EC) Countries arm of this project was to identify, collate and summarize HRH resources from all existing sources of information and highlight areas where information is unavailable.

1.3. Objectives of the Project in the ECC

The above aim can be broken down into four objectives (as detailed in the original request for proposals):

- **Objective 1.** Develop a situation analysis of the main components of the health workforce in the ECC
- **Objective 2.** Describe the main Human Resources in Health trends
- **Objective 3.** Summarize a limited set of problems or challenges related to Human Resources in Health that hamper the improvement of the health system
- **Objective 4.** Provide a plan for establishing a data collection/management process that can be part of a sustainable updating practice.

1.4. Preparatory Work

Development of Core Data Set

An orientation seminar was held to facilitate the development of a core data set that would be relevant to all participating countries. The seminar took place in Barbados (28-29 September 2007) and was attended by teams from Jamaica, Belize, Trinidad and Tobago and Barbados/EC, along with relevant PAHO country programme officers. In addition to presentations from each research group on potential approaches for data management and previous experiences from Canada and the United States, workshops were held to discuss and agree on the various components of the core data set. Ultimately, the seminar developed a core dataset for implementation by all data collection teams (see Appendix 1 for the full core dataset).

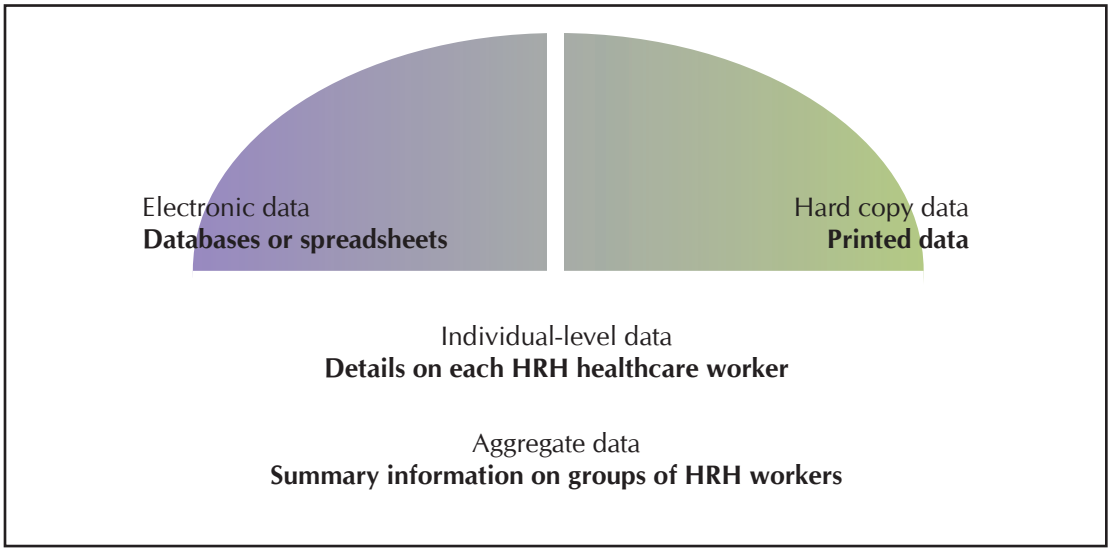
Contributors and Stakeholders

The PAHO office in Barbados and the local Country Program Officers facilitated meetings with focal points from each Ministry of Health (MoH). These focal points were responsible for coordinating meetings with a range of individuals including the Permanent Secretary, Chief Medical Officer, Principal Nursing Office, directors of training and others. As with the Barbados arm of the study the focal points were key to making contact with all the relevant stakeholders and within and outside the government, and played an important role in the data collection process.

Types of Data Available

The available data fell into one of four categories: individual-level or aggregate data presented in either electronic or hard copy format (Fig. 1.1).

Figure 1.1: Types of data available



For this data collection exercise, data have been classified in one of these four formats: electronic individual-level data (EIN), electronic aggregate data (EAG), hard-copy individual level data (HIN), and hard-copy aggregate data (HAG).

Wherever possible data were collected in EIN format. If EIN data were not available then electronic aggregated data (EAG) were collected. If electronic data were not available, summary data in hard copy (HAG) were collected. Hard-copy data were converted to electronic formats before data analysis, and anonymized during data collection. All electronic data were stored securely on an encrypted and access-controlled server. Names and other identifying information were replaced by a unique numeric code to anonymize all records.

Types of Potential HRH Data Sources

There was no centralized data source in any EC country containing information on the three healthcare sectors (private healthcare, public healthcare and Non-Governmental Organizations - NGOs), and data were collected on a sector by sector basis. Consequently, each sector has different data sources.

There are various sources from which quantitative data pertaining to HRH can be collected. In the EC the sources that are directly involved in HRH management can be broadly divided into the following types:

- **Type 1. Public Sector.** (Defined as public finance / provision of health care services) Consisting of Ministry of Health (MoH) controlled facilities and any board controlled hospitals (BCH). Data from this source was always the most accessible.
- **Type 2. Private Sector.** (Defined as privately funded / provision of services on a cost basis to the patient) Consisting of private hospitals, private physician offices, private laboratories, private imaging centres, private nursing services and private treatment centres.

At the outset of the project the ease of obtaining information from this sector was perceived to be dependent on the regulations and infrastructure governing or supporting this sector. During the course of this project, it became apparent that although this sector is Government regulated, there is rarely any mechanisms for enforcing personnel registration, or any punitive measures for non-registration. Consequently, data collection on the number of workers operating in this sector has been limited to registration councils and/or the telephone directory listings.

- **Type 3. NGOs.** Defined as not-for-profit non-governmental organizations that are related to disease areas or healthcare. In the ECC no significant input (requiring MoH staff) from NGOs was declared.

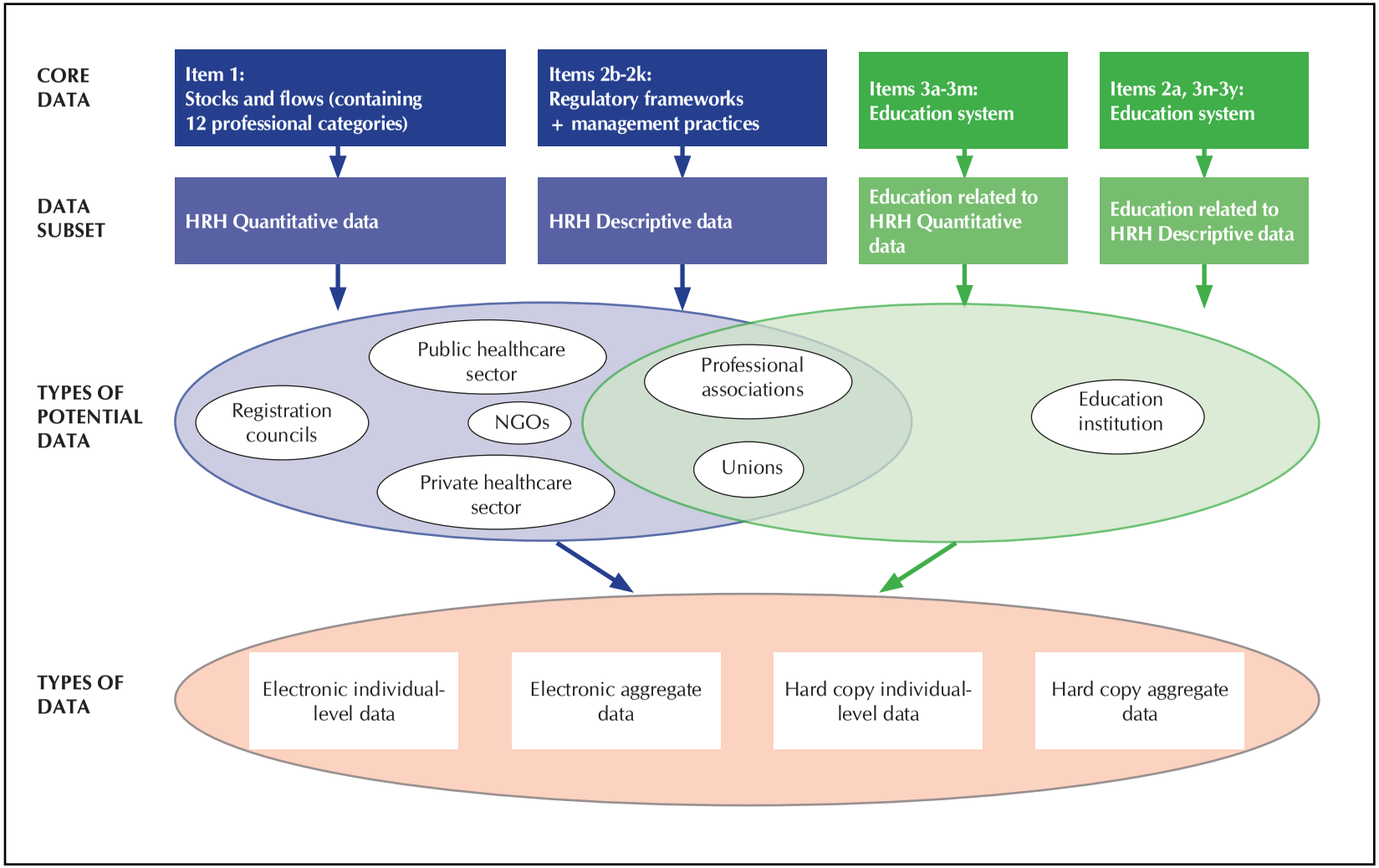
Many of these information sources could be considered primary sources as individual-level data can be obtained from Human-Resource records. However, for types 2 and 3, complete information was rarely available, and national surveys would be needed to obtain the required information. National HRH surveys were beyond the scope of this current project, and alternative data sources were sought for both the private sector and NGOs.

Other Types of Potential Data Sources

In addition to the three types detailed above, the following institutions/organizations formed a further four types of potential data source:

- **Type 4. Unions.**
- **Type 5. Registration Councils.** All healthcare professionals must register with their appropriate council in order to practice. The process and the frequency of registration and/or licensure varied between the EC countries. Typically, when an individual registers, their fees are paid at the government office of the registrar, and registration records are then kept by both the government and the registration councils.
- **Type 6. Professional Associations.** Only the larger groups of health professionals (doctors, nurses, dentists, pharmacists) have local associations. Some groups belong to regional professional associations while others do have a “special interest group.”
- **Type 7. Educational institutions.** Most of the EC countries have access to both public universities (primarily the University of the West Indies) and private/“off-shore” universities. Additionally, nationals from some countries have access to a range of overseas training, e.g. Cuba and China—this training is sponsored by the respective government. These countries also have state or community colleges that are responsible for training nurses and technicians. Limited and growing numbers of nationals attend the University of the West Indies (UWI). The UWI has four physical campuses in Barbados (Cave Hill), Trinidad (St. Augustine), Jamaica (Mona), and Bahamas and is rapidly expanding its distance education platform through its fifth campus—the Open Campus. Courses are split across campuses; e.g. degree level pharmacy is only available at St. Augustine, while medical training is now available on all three campuses. State or community colleges provide associate degree level training for a selected range of health professions such as nursing, pharmacy, and laboratory technicians.

Figure 1.2: Summary of data types and data sources



Summary of Data and Data-Source Definitions (Fig. 1.2)

- **Data subsets:** HRH quantitative (Item 1a-c), HRH descriptive (Item 2b-2k), Education quantitative (Item 3a-3m), Education descriptive (Item 2a, 3n-3y).
- **Data collection phases:** (1) Identifying sources, (2) Identifying data, (3) Data collection, (4) Data analysis
- **Data source types:** (1) Government departments, (2) Private sector, (3) NGOs, (4) Unions, (5) Registration councils, (6) Professional associations, (7) Educational institutions.

2. Methods

2.1. Background

The success of health services depends critically on the size, calibre and commitment of the health workforce. However, relevant information on health workers remains widely dispersed and un-standardized. These limitations impede the ability to make informed decisions on resource allocation in the health sector. In the EC countries, quantitative data on human resources for healthcare (HRH) and education have been assessed and collected from a wide range of sources. These sources (detailed in Fig. 2.1) can be grouped into the following areas:

- **Socioeconomic and demographic:** Census and household labour survey information.
- **Administrative registers:** Health provider personnel databases, college databases for graduation information.
- **Certification data:** Labour registration databases, registration councils (the licensing and accreditation bodies in Barbados).
- **Other sources:** National health accounts, unions databases.

Counting the health workforce from this variety of sources is a challenge. The quality of the recorded information, the manner of collection, and the criteria for coding and categorizing are highly variable. This data management chapter describes the general considerations followed in assembling the EC countries health workforce data set. It then details the salient features of this new resource.

2.2. Chapter Structure

This section is divided into three parts: General considerations, data collection, and data source identification / dataset development. Data collection and data set development were accomplished in parallel in three phases: identification of data sources, identification of information, and data collection (see section 2.4). Details of the data management processes are provided in in Appendix 6 (Preparing the Health Workforce Database) and Appendix 7 (Contents of the Health Workforce Database).

2.3. General Considerations

Who Are Health Workers?

Following WHO guidelines, we defined health workers as "all people engaged in the promotion, protection, or improvement of the health of the population". Strictly, this definition might include, for example, family or friends caring for the sick or frail. Such inclusions would blur the boundary of what constitutes a healthcare system. Moreover, information on this informal healthcare is rarely available. **We therefore restrict our definition for this project to include those healthcare workers being paid for their services.**

> "Human Resources for Health are those workers being paid for their services"

Defining Occupational Groups

Definitions of occupations may vary between institutions, and there will almost certainly be cross-national variation. This variation must be harmonized to a standardized occupational grouping. The International Standard Classification of Occupation (ISCO) provides one such framework for categorizing occupation. It measures occupations according to two dimensions: skill level and skill specialization. The most recent version (ISCO-88) uses a hierarchical 4-digit system that can be aggregated to progressively broader groups. To summarize occupations among health workers, we adopted 12 professional categories, which are described in Appendix 4. In discussions with Ministry of Health personnel from each EC country, we mapped all health sector jobs to these broad categories.

Non-Health Trained Workers in Health Industries

There are many non-health trained workers in health industries, such as managers, computing professionals, trade, clerical, and service workers. They provide managerial and infrastructure support, without which a healthcare system could not function—they are a valid component of the healthcare workforce.

2.4. Data Collection

Data collection consisted of the following phases:

- **Phase 1.** Identification of information sources. During the preparatory work, broad categories of data sources were identified and organizations and individuals constituting these categories were defined (see Appendix 5).
- **Phase 2.** Identification of information. Once the data sources had been identified, confirmation of the data held by each source was confirmed.
- **Phase 3.** Data collection. Once information availability had been confirmed with a data source, a request for the data was made. Figure 1.1 details the types of data collected, and Figure 1.2 and Figure 2.1 detail the HRH and education-related data sources used.

2.5. Human Resources in Health - Data Source Details

Data on the health workforce of a region or nation has rarely been collected systematically, and this means that current attempts to redress the information gap must use information from multiple sources of variable quality and formats. Moreover, there is also variability in terms of what data are collected, and how these data are summarized, stored, and presented. Data sources can be grouped into four broad categories: census and survey data, administrative databases, certification data, and other sources. Particular data sources within these four categories are presented in Figure 2.1. Each data-source category is described in detail below.

Census and survey data

Population data used information originating from the national census from each of the four included EC nations. All four countries performed a census in 2001[3]. Population estimates for each country for 2009 by age (in 5-year age groups) and by gender were obtained from the US Census Bureau International Data Base (IDB)[4], and these updated estimates were used to calculate worker densities.

Administrative databases

Public health sector payroll: The Ministries of Health (MoH) maintain an employee database for payroll purposes. For each employee, this database provides an in-house (i.e. not ISCO-88 compliant) description of occupation, along with age, gender, and employment facility.

Schedule of personnel emoluments/budget estimates (hardcopy/electronic): A second MoH data source provides details of number of funded health sector jobs, and which of these jobs are currently filled. Both data sources refer to the public health sector only. There are no equivalent databases for the private health sector.

Certification data

Many trained health sector workers must register in order to practice their trade. These lists of accredited and registered practitioners should be published annually and when available are a useful source of trained health sector workers.

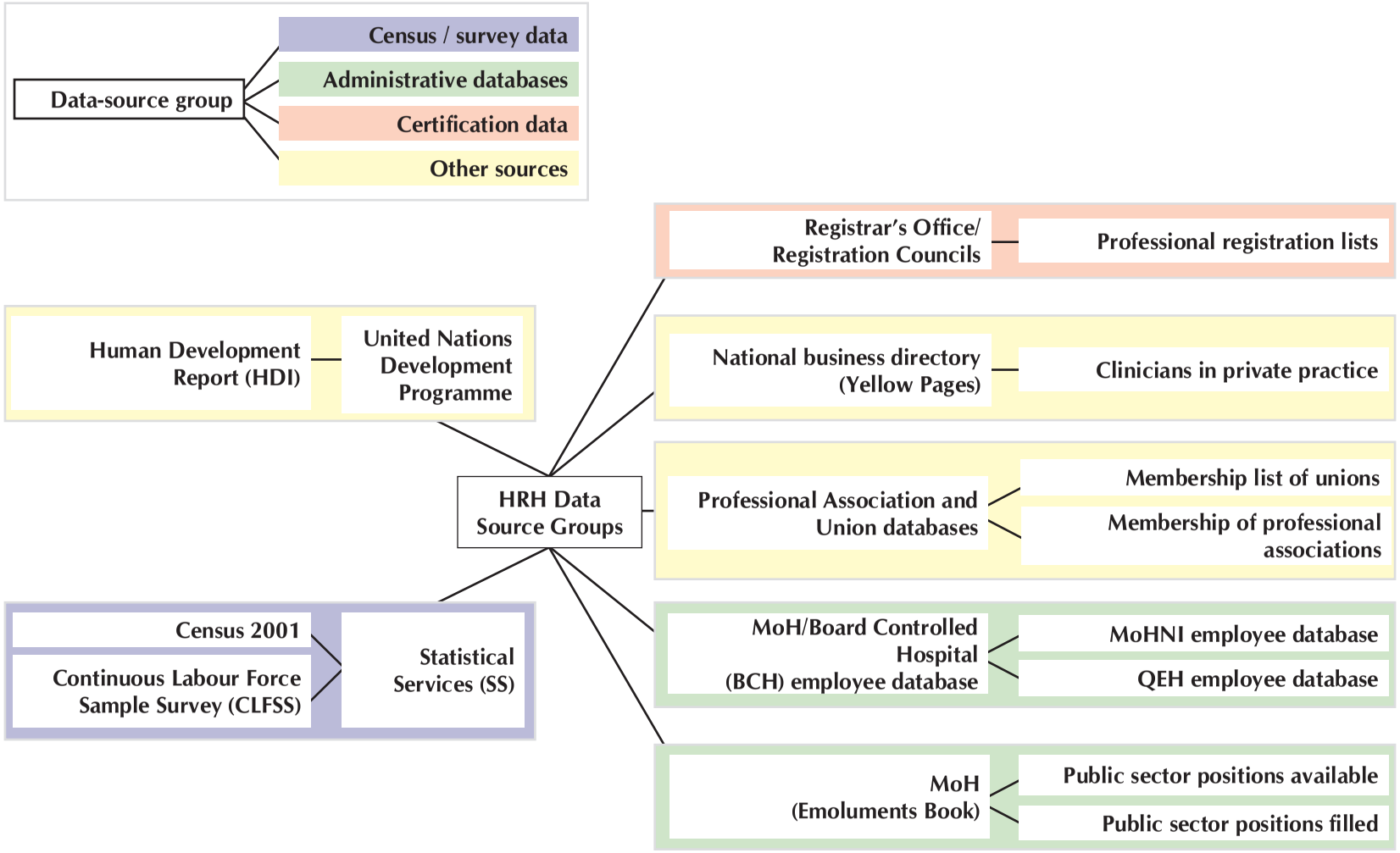
Other sources

An informal listing of private sector physicians is obtained from the national telephone directory (The Yellow Pages). Other informal sources include the registration lists of professional associations and unions. However, registration with such organisations is not compulsory so the list is expected to be less complete than certification lists. To establish membership for other occupational groups would require new data collection using survey methodology, which is beyond the scope of this project.

3. Dominica: The population and housing census of Dominica, 2001. Grenada: The population and housing census, 2001. Saint Lucia: The 2001 population and housing census report. Saint Vincent and the Grenadines: Population and housing census report, 2001.

4. http://www.census.gov/ipc/www/idb/index.php.

Figure 2.1: HRH data source groups



2.6. Education for HRH - Data Source Details

General Considerations

Data on the education system for HRH describe the national infrastructure in place to train healthcare workers. The majority of information comes from two sources, the Community/State Colleges (CC) and The University of the West Indies (UWI), with some descriptive items from the off-shore universities.

Education for HRH - Data Source Details

Unlike the HRH worker information, which was always at the individual-level (one row Unlike the HRH worker information, which was always at the individual-level (one row of computerised data per health worker), information on the education system for HRH workers was received as aggregate annual summaries of student intake and graduates.

Data sources can be grouped into four data-source categories: census and survey data, administrative databases, certification data, and other sources. Particular data sources within these four categories are presented in Figure 2.2. Data for this sector comes from administrative databases only, and the particular data sources are described in detail below.

Administrative databases

Community/State Colleges (CC): The CC maintains statutes on all ratified vocational courses and degree programmes, and produces annual aggregate data on the number of student admissions and the number of students completing courses.

The University of the West Indies (UWI): The UWI maintains statutes on all ratified undergraduate and postgraduate degree programmes, and produces annual aggregate data on the number of student admissions and the number of graduate and postgraduate degrees awarded.

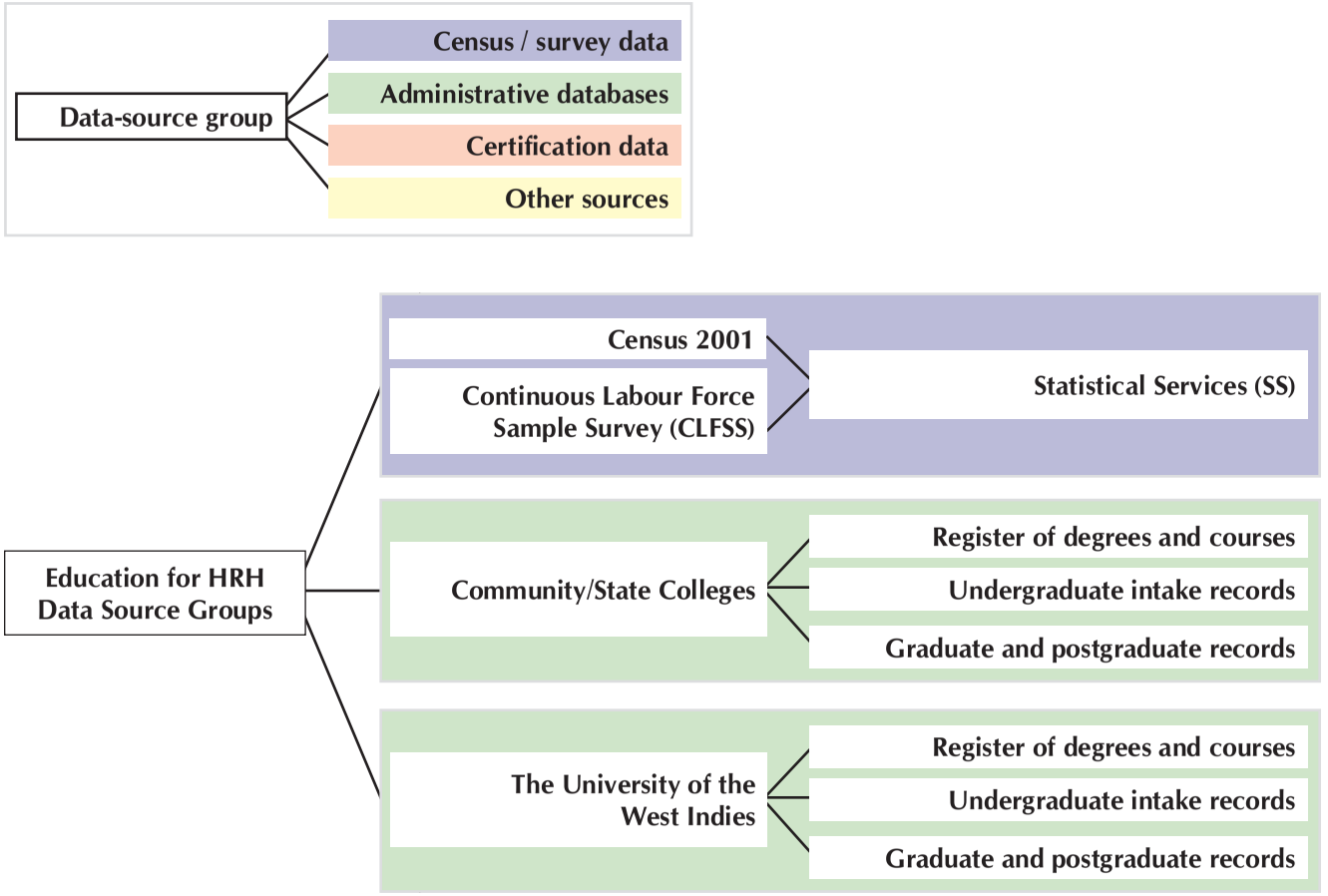
2.7. Preparing the ECC Health Workforce Database

Full details on the computational algorithms used to combine the various datasets and prepare the EC countries health workforce dataset are presented in Appendix 6.

2.8. Contents of the ECC Health Workforce Database

The technical specification of the EC country health workforce dataset are presented in Appendix 7.

Figure 2.2. Education for HRH data source groups



Database Limitations

With the exception of the Ministry of Health administrative database, no data sources could provide complete information on important stratification variables—health worker age and gender.

The database does not include family members, other unpaid caregivers, and voluntary workers, all of whom provide important healthcare services in the community. There is currently no national data collection policy in place to record these healthcare workers.

Secondly, the database has no way of recognizing part-time workers, or workers who as part of a non-health industry job may contribute to the health of the nation—a good example might be police officers who enforce seatbelt or drink-driving laws.

The ability to stratify into public and private healthcare workers is an important one, and has been attempted in this dataset. However, many clinicians work in both sectors, and the relative time spent in each sector cannot be ascertained.

3. Dominica - Results

3.1. Dominica Notes

Dominica is an island in the Eastern Caribbean with a total land area of about 751 km^2 and comprises 10 administrative parishes. It has a population density of 91 people per km^2 [(5)]. The United Nations Human Development Index[6] (a standard measure of human development, focusing on education, healthcare, income and employment) placed Dominica 73rd in a league table of nations. At the 2001 census Dominica had a population of 69,625 (adjusted for undercount). Accounting for population growth gives an estimated population of 72,660 in 2009[7]. From the same census, the working population (aged 15 and older in employment) was 24,811 (with a total workforce of 48,287). The Dominica statistical office does not have a definition for "urban" and "rural". The census does provide a breakdown for St. George: Roseau (14,538) and the rest of St George (5,286). The most densely populated parishes are: St. George (19,825) and St. Andrew (10,240). For the purposes of health services management the country is divided into seven health districts (see Table 3.7 for details), with Roseau having the greatest catchment. At the 2001 census the Dominica population was primarily of African descent (86%) and so data stratifications by race or ethnicity were not applied.

Figure 3.1: The 10 parishes of Dominica

5. United Nations world population prospects 2005 (http://esa.un.org/unpp, accessed 27/Nov/2009).
6. United Nations human development Indices (http://hdr.undp.org/en/media/HDI_2008_EN_Tables.pdf accessed 30/Oct/2009).
7. CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook/geos/vc.html. Accessed 28/Nov/2009).

3.2. Human Resources in Health (HRH) Quantitative Information

3.2.1. Public-sector HRH workers

Public-sector HRH workers by facility type

Dominica has a public-sector health service that is free to all residents at the point of care. The healthcare workers that make this possible are documented and maintained via the Government payroll system, using a well known off-the-shelf database —Smartstream. For national comparisons, these jobs have been grouped into 11 occupational categories defined by the inception of this HRH data summary project.[8]

Information on the number of public-sector HRH workers by facility is presented in Table 3.1. The Princess Margaret Hospital, the public-sector tertiary referral centre for the entire country, is the largest employer of healthcare workers, with 483 staff or 58.6% of the entire public-sector HRH workforce. The health districts together employ another 198 (24.0%) of the HRH workforce (Table 3.1). There are 54 health centres/clinics across the seven health districts with varying catchment populations (see Table 3.7 for details). The number of workers attached to each health district is presented in Table 3.2. The three districts employing the greatest number of staff are Portsmouth (54 staff or 28% of all health district workers), Roseau (45 staff or 23%), and Marigot (29 staff or 15%).

Table 3.1: Number of HRH workers in each public-sector facility group

Public sector facility type	Number of workers (%)
Princess Margaret Hospital (PMH)	483 (58.6)
Health Districts [a]	198 (24.0)
Ministry of Health [b]	56 (6.8)
Laboratory Services	40 (4.9)
Dental Services	13 (1.6)
Environmental Health Services [c]	13 (1.6)
Psychiatric Unit	12 (1.5)
Drug Prevention Unit	9 (1.1)
TOTAL workers	824

[a] There are 7 health districts (Roseau excluding Prince Margaret Hospital), St Joseph, Portsmouth, Marigot, Grand Bay, La Plaine and Castle Bruce) with 54 health centres/clinics.

[b] Ministry of Health includes: Ministry of Health administration, Medical Stores, Health Promotion Resource Centre, and the Health Information Unit.

[c] Environmental Health Services includes: Environmental Health Services, Environmental Co-ordination Unit.

8. The 12 occupation categories are: Medical doctors, Nurses and midwives, Dentists and allied trades, Pharmacists and allied trades, Social workers, Rehabilitation workers, Laboratory technologists, Public health practitioners, Nutritionists, Mental-health practitioners, Other health workers.

Table 3.2: Number of HRH workers in each health district (excluding Princess Margaret Hospital)

Health district	Number of workers (%)
Portsmouth	54 (28.4)
Roseau	45 (22.7)
Marigot	29 (14.6)
Castle Bruce	18 (9.1)
Grandbay	18 (9.1)
St. Joseph	18 (9.1)
Laplaine	16 (8.1)
TOTAL health district workers	198

Public-sector HRH workers by major occupational category

Dominica has 824 public-sector healthcare workers, and the numbers, stratified by major occupational category, age and gender are presented in Appendix 2. These numbers are presented by occupational category in Table 3.3. Clinical doctors represented 15% of the total public sector HRH workforce, nurses, and midwives represented 45%, and nursing assistants accounted for a further 8% of the workforce. All health management and support workers represented 10.3%. This proportion of management and support workers is well below above the world average of 33%, reported by the WHO in 2006 (see Table 3.3).

In Table 3.3 to Table 3.4 these HRH counts have been used with population data from the Dominica 2001 census to present two key summary measures: HR worker density per 10,000 population and the number of people in Dominica per HRH worker. In the public sector, there are 17.1 medical practitioners per 10,000 population (or 1 doctor for every 586 Dominicans). With 370 nurses in the public-health system (a density of 50.9 per 10,000) there is one nurse for every 196 Dominican and roughly 3 nurses for each doctor. Public-sector HRH workers per 10,000 population by occupational category.

> "There are 17.1 doctors, 50.9 nurses, and 9.4 nursing assistants for every 10,000 people in Dominica"

Table 3.3: Public-sector HRH workers per 10,000 population by occupational groupings

Occupation	Number of workers (%)	Density per 10,000 population (95% CI)	Population per worker
Medical doctors	124 (15.0)	17.07 (14.19 – 20.35)	586
Nurses and midwives [a]	370 (44.9)	50.92 (45.86 – 56.38)	196
Nursing assistants [b]	68 (8.3)	9.36 (7.27 – 11.86)	1,069
Dentists and allied	21 (2.5)	2.89 (1.79 – 4.42)	3,460
Pharmacists and allied	18 (2.2)	2.48 (1.47 – 3.92)	4,037
Social workers	8 (1.0)	1.10 (0.47 – 2.17)	9,083

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...continuation of Table 3.3.

Occupation	Number of workers (%)	Density per 10,000 population (95% CI)	Population per worker
Rehabilitation workers	4 (0.5)	0.55 (0.15 – 1.41)	18,165
Technologists	60 (7.3)	8.26 (6.31 – 10.63)	1,211
Public health practitioners	65 (7.9)	8.95 (6.90 – 11.40)	1,118
Nutritionists	1 (0.1)	0.14 (0.01 – 0.77)	72,660
Mental-health practitioners [c]	0 (-)	-	-
Other health workers [d]	85 (10.3)	11.70 (9.34 – 14.47)	855
ALL health workers	824	113.4 (105.8 – 121.4)	88.2

Table 3.4: Public-sector HRH workers per 10,000 population by major occupational groupings

Occupation	Number of workers	Density per 10,000 population (95% CI)	Population per worker
Doctors, nurses, midwives [a]	494	68.0 (62.1 – 74.3)	147
Doctors, nurses, midwives, nursing assistants [b]	562	77.3 (71.1 – 84.0)	129
ALL health care providers	739	101.7 (94.5 – 109.3)	98
All health workers	824	113.4 (105.8 – 121.4)	88

[a] Nurses and midwives have the same occupational groupings in the Government payroll system.

[b] Nursing assistants are certified and registered HRH-staff who assist individuals with healthcare needs such as activities of daily living (ADLs) and provide bedside care—including basic nursing procedures—all under the supervision of a Registered Nurse.

[c] There are no mental health workers using PAHO classification criteria. However, the psychiatric unit has 12 registered staff: 3 specialist medical officers, 3 social workers, 2 nurses, 2 nursing assistants, and 2 support workers.

[d] The number of health managers and support workers involved in maintaining healthcare and healthcare facilities is low. Contract workers employed by the Ministry of Health increases the total to 156 (a density of 21.5 per 10,000).

In Dominica another category of nursing staff exists—the nursing assistant. The nursing assistant is trained, is required to register with nursing council before practising, and is available to assist individuals with activities of daily living and bedside care under the supervision of fully-qualified nursing staff. With 68 nursing assistants in the public healthcare system (a density of 9.4 per 10,000) there is one nursing assistant for every 1,069 Dominicans. A fourth major category—other health workers—includes the many health managers and other support workers involved in maintaining healthcare and healthcare facilities; there are 85 full time managers and support workers listed in the Government payroll system (a worker density of 11.7 per 10,000 population). Government use of contract workers means that this number is likely to be an underestimate of the real healthcare support workforce. Using the Ministry of Health Emoluments Book, there are a further 71 contract workers (mostly cleaning staff) in all healthcare facilities (except the Princess Margaret Hospital). This increases the number of support workers to 156 (a density of 21.5 per 10,000 population, or 1 support worker for every 466 Dominicans). The employment of contract workers at the Princess Margaret Hospital would increase this number still further.

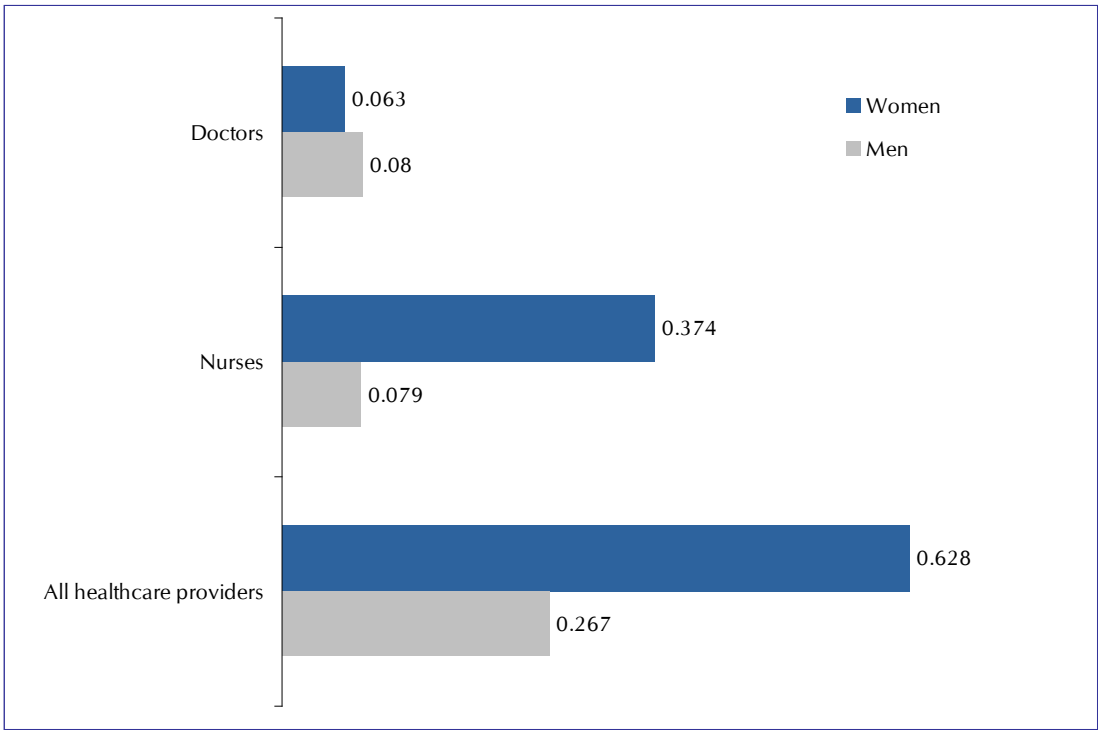
Table 3.5 and Figure 3.2 present the numbers and the density of healthcare workers stratified by gender. There are broadly equivalent numbers of male and female medical practitioners (density - women: 7.0 per 10,000; men: 9.0 per 10,000). A gender disparity is most apparent in nursing staff (density - women: 41.8 per 10,000; men: 8.8 per 10,000) and this is the main contributor to an overall ratio of 2 women in healthcare for every man (overall density - women: 75.6 per 1,000; men: 36.2 per 1,000).

Table 3.5: Public-sector HRH workers per 10,000 population by major occupational category and gender[a]

Occupation	Women		Men	
	Number (%)	Density per 10,000	Number (%)	Density per 10,000
Medical doctors	51 (6.3)	7.02	65 (8.0)	8.95
Nurses and midwives	304 (37.4)	41.84	64 (7.9)	8.81
Nursing assistants	62 (7.6)	8.53	6 (0.7)	0.83
Dentists and allied	16 (2.0)	2.20	5 (0.6)	0.69
Pharmacists and allied	6 (0.7)	0.83	12 (1.5)	1.65
Social workers	3 (0.4)	0.41	5 (0.6)	0.69
Rehabilitation workers	3 (0.4)	0.41	1 (0.1)	0.14
Technologists	31 (3.8)	4.27	28 (3.4)	3.85
Public health practitioners	34 (4.2)	4.68	30 (3.7)	4.13
Nutritionists	0 (-)	-	1 (0.1)	0.14
Mental-health practitioners	0 (-)	-	0 (-)	-
Other health workers	39 (4.8)	5.37	46 (5.7)	6.33
Doctors, nurses, midwives	355	48.86	129	17.75
Doctors, nurses, midwives, nursing assistants	417	57.39	135	18.58
ALL health care providers	510	70.19	217	29.87
All health workers	549	75.56	263	36.20

[a] The gender of 12 HRH workers is unknown.

Figure 3.2: The percentage of female and male HRH workers who are doctors, nurses, or any type of healthcare provider



HRH workers by broad age categories are presented in Table 3.6 and Figure 3.3. The overall number of health workers increases initially, rising from 116 younger than 30, to 241 aged 30 to 39 years, to 255 aged 40 to 49 years. The HRH workforce then decreases in the older groups: 180 aged 50 to 59 and 20 aged 60 and older. The official Dominica retirement age of 60 for women and 65 for men dictates fewer workers in the oldest age group.

Table 3.6: Public-sector HRH workers by major occupational category and age[a]

Occupation	Younger than 30	30 to 39	40 to 49	50 to 59	60 and over	Age unknown
Medical doctors	10	40	33	25	8	8
Nurses and midwives	59	118	114	73	4	2
Nursing assistants	15	19	24	9	1	0
Dentists and allied	0	7	7	7	0	0
Pharmacists and allied	1	5	2	10	0	0
Social workers	0	3	3	2	0	0
Rehabilitation workers	0	2	1	1	0	0
Technologists	12	15	22	8	2	1
Public health practitioners	5	12	25	19	3	1
Nutritionists	0	0	0	1	0	0

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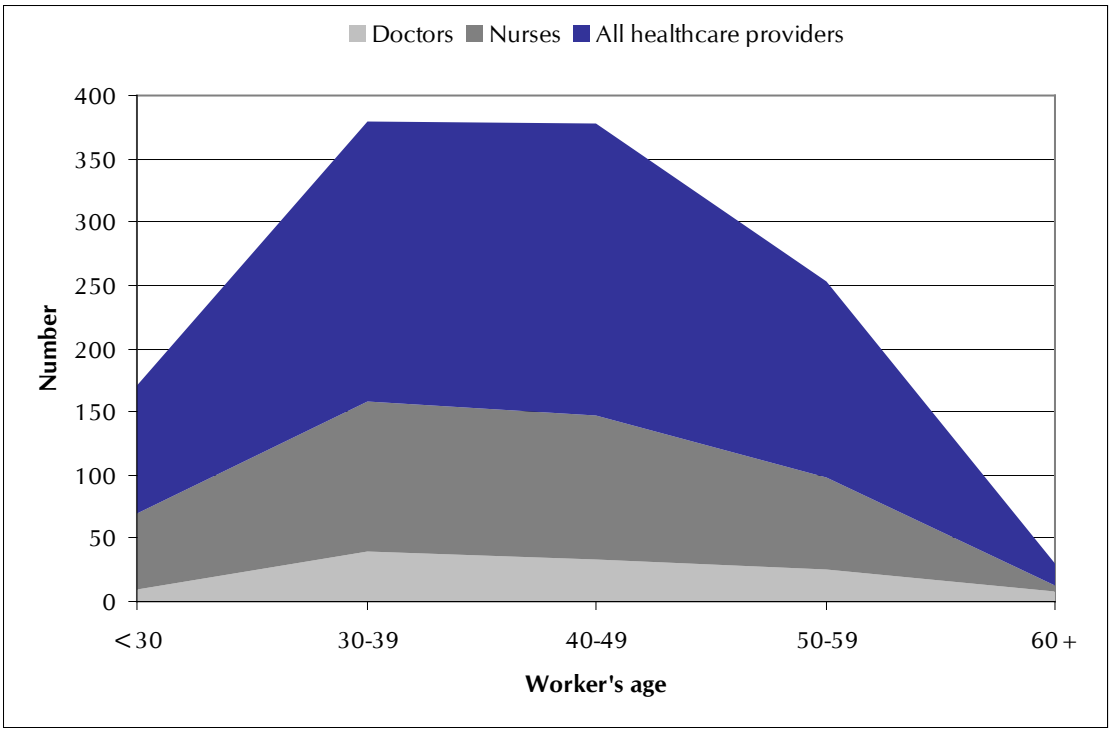
...continuation of Table 3.6.

Occupation	Younger than 30	30 to 39	40 to 49	50 to 59	60 and over	Age unknown
Mental-health practitioners	0	0	0	0	0	0
Other health workers	14	20	24	25	2	0
Doctors, nurses, midwives	69	158	147	98	12	10
Doctors and all nurses	84	177	171	107	13	10
ALL health care providers	102	221	231	155	18	12
All health workers	116	241	255	180	20	12

Note: Due to the small numbers, no percentages are given.

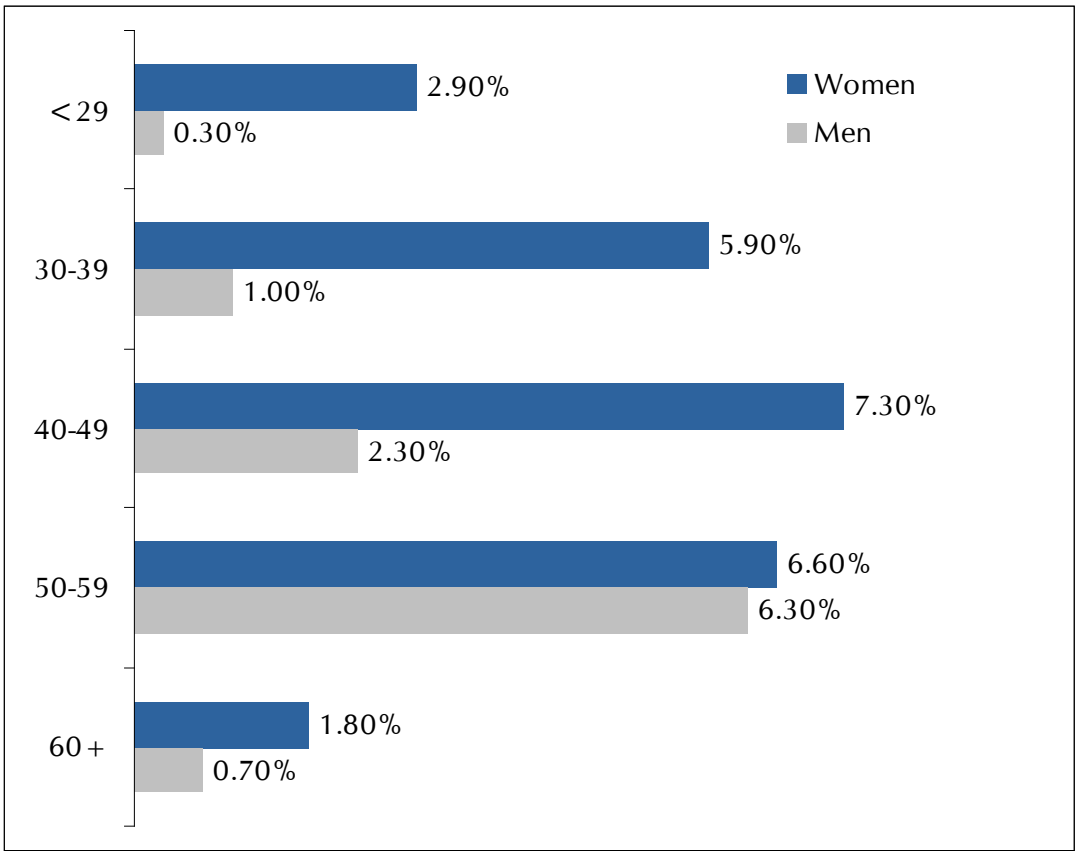
Figure 3.3: The number of HRH workers who are doctors, nurses, or any type of healthcare provider, by age



Public-sector HRH workers and the Dominica workforce

The number of HRH workers as a percentage of the current Dominica workforce is presented by age and gender in Figure 3.4. Overall, women in healthcare represent 5.07% and men 1.58% of the total workforce. As a percentage of the employed workforce, women far exceed men in the healthcare sector. This excess is primarily driven by the gender disparity seen in nursing.

Figure 3.4: Public-sector HRH workers as a percentage of the employed population of Dominica aged 15 and over, by age and gender



Public-sector HRH workers and health districts

Rural hospitals and health centres/clinics are located to service particular geographical populations (known as health districts), However, Dominica is a small island, and residents are not tied to a single health district for their primary healthcare. Residents who commute to the city for work may choose to use health facilities in Roseau—meaning that health centre use may not be closely tied to the area of residence. With this important caveat in mind, Table 3.7 presents health centre workers per 10,000 population for the 7 health districts. There is a total of 198 health district workers in Dominica (a density of 28.3 per 10,000 population). The densities in the health districts range from 13.8 per 10,000 in Roseau to 57.9 per 10,000 in Portsmouth. The location of the Princess Margaret Hospital contributes to the artificially low worker density in Roseau District.

> "There is 1 nurse for every 212 people at the Princess Margaret Hospital, and 1 nurse for every 692 people in the districts"

Table 3.7: Workers and worker density by health district

Health District	Health District Population [a]	Doctors and nurses		All HRH workers	
		Number	Density per 10,000	Number	Density per 10,000
Portsmouth	9,333	31	33.2	54	57.9
Roseau [b]	32,682	27 [c]	8.3 [c]	45 [c]	13.8 [c]
Marigot	8,310	16	19.3	29	34.9
Castle Bruce	4,036	11	27.3	18	44.6
Grandbay	5,962	12	20.1	18	30.2
St. Joseph	6,278	10	15.9	18	28.7
Laplaine	3,383	8	23.6	16	47.3
TOTAL	69,984	115	16.4	198	28.3

[a] Health district population estimates use 2001 census figures—not extrapolated to 2009.

[b] Roseau comprises 4 areas—the largest of which is Central with a population of 14,697.

[c] Does not include staff at Princess Margaret Hospital.

Doctors and nurses in the public-sector: primary versus tertiary care

Clinical doctors are primarily employed at the Princess Margaret Hospital—the country's only tertiary referral centre. Other health care providers are also employed across the health districts at the district health centres. Table 3.8 describes the density of health care providers at these facility types. The densities vary considerably between facility types, with the highest density at the treatment intensive Princess Margaret Hospital. At the Princess Margaret Hospital there are seven times as many doctors and three times as many nurses than in the health districts.

Table 3.8: Nurses, nursing assistants, and clinical doctors per 10,000 population in facility types

Facility type	Number	Density per 10,000 [a]	Population per worker
Doctors			
Princess Margaret Hospital	101	14.4	692
District Health Centres	14	2.0	4,995
Nurses and Midwives			
Princess Margaret Hospital	330	47.2	212
District Health Centres	101	14.4	692
All healthcare providers			
Princess Margaret Hospital	437	62.5	160
District Health Centres	190	27.2	368
All health workers			
Princess Margaret Hospital	483	69.1	145
District Health Centres	198	28.3	353

[a] Population estimates use 2001 census figures—not extrapolated to 2009.

Doctors in the public sector: specialist subgroups

Data from SmartStream did not provide details of the medical specialties in Dominica, but this information was available in hardcopy from the Ministry of Health (Table 3.9).

Table 3.9: The number of full time senior clinical doctors at PMH by specialty

Department	Overseas technical assistance	Full-time	Total
Anaesthesia	1 [a]	1	2
Consultant physician	0	1	1
Internal Medicine	1 [b]	0	1
Gynaecology	0	3	3
Ophthalmology	0	1	1
Paediatrics	1 [a]	1	2
Pathology	1 [b]	0	1
Radiology	1 [a]	1	2
General surgery	1 [b]	1	2
Orthopaedic surgery	0	1	1
ENT	0	1	1
Intensive Care	3 [b]	0	3
Gastroenterology	1 [b]	0	1
Dermatology	0	0	0
TOTAL	10	11	21

[a] From China.

[b] From Cuba.

3.2.2. Private-sector HRH workers

Like many countries operating a social healthcare system, alternative private healthcare options exist in Dominica. Minimal regulations and a lack of standardised data collection mean that information on healthcare professionals in the private sector is limited to estimates of professions for which registration is required to practice a trade. There are two registration councils, the Dominica Medical Board (covering medical doctors, dentists and pharmacists), the General Nursing Council (nurses and nursing assistants). However, the Dominica Medical Board does not require annual renewal of registration and there is no list of the relevant professionals in the Government Gazette. In contrast, the Nursing Council does require annual payment of fees for continued registration, but data do not specify which sector the individual is employed in. Details of those employed in the private sector were obtained in hardcopy format from the MoH or the Yellow Pages. There is one private hospital, but no data were available. The table below summarises data obtained from the Ministry of Health.

Table 3.10: HRH workers in public and private healthcare in Dominica by occupational category

Occupation	Number in public sector	Estimated full/part-time private-sector workers
Medical doctors a	54	23 [b]
Dentist	4	5
Nurses/nursing assistants	289/60	unknown
Pharmacists	11	13 [c]

[a] Figures from Ministry of Health not The Dominica Medical Board.

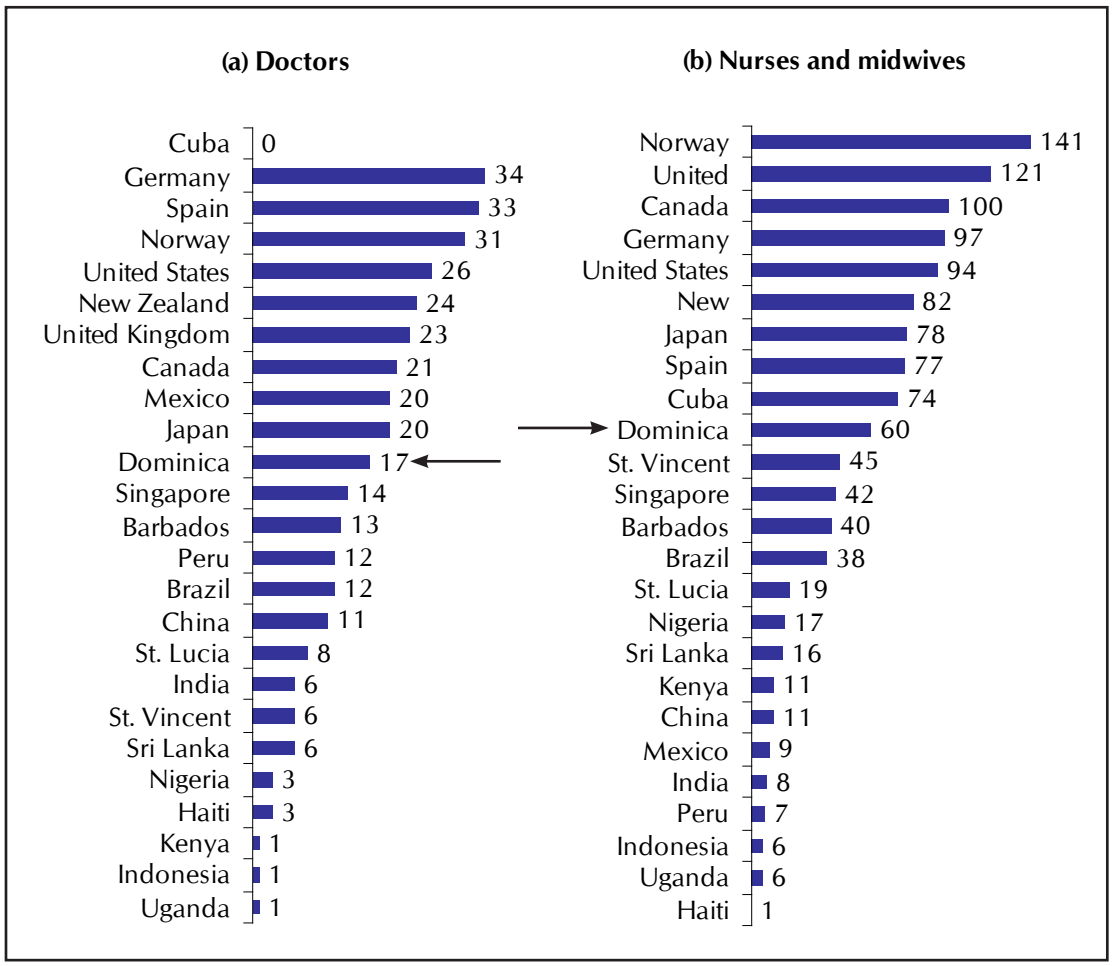
[b] Include 9 doctors working at the Ross University (off-shore)—24 are listed in the Yellow Pages.

[c] From Yellow Pages.

3.2.3. Comparing Dominica HRH workers with international estimates

The World Health Organization's 2006 annual report focused on human resources for health, providing health workforce estimates worldwide. In Figure 3.5 the density of doctors and nurses per 10,000 population is presented for Dominica (using data from this report), and a further sample of 23 countries (using data from both the WHO 2006 annual report and from this PAHO project).

Figure 3.5: The number of doctors per 10,000 population for Dominica and a sample of 23 countries worldwide



3.3. Human Resources in Health (HRH) - Descriptive Information

3.3.1. Regulatory framework and management practices

For the public sector much of the regulatory tools concerning health employment are described in the Public Service Commission Act, General Orders and associated employment acts and implemented by the Public Service Commission. Legislation is also in place for professional registration and unionisation. Table 3.11 details which legislation is associated with the various items of the core data set (ITEMS 3A to 3K).

Table 3.11: Descriptive data required concerning public sector management practices of human resources in health, and categories of potential information sources

Item	Descriptive data	Source	Reference	Comments
2a	Regulatory tools concerning University training programmes, accreditation, approval and financing.	University of the West Indies (UWI)		UWI's MBBS has been accredited by the Caribbean Accreditation Authority for Education in Medicine and other Health Professionals (CAAM-HP). CAAM-HP are also responsible for the accreditation of dental schools.
		Ross University School of Medicine		The United States Department of Education, through its National Committee on Foreign Medical Education and Accreditation has determined that the accreditation standards employed by the Dominica Medical Board are comparable with those used to evaluate programs leading to the M.D. degree in the United States by the Liaison Committee on Medical Education. A few states require approval for international schools. For the states that do, Ross University is still approved.
2b	Main regulatory tools for health employment: career paths selection systems, performance management + evaluation.	Public Service Commission	Public Service Act + General Orders, Public Service Commission + Regulations	
2c	Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)	Dominica Law	Medical Registration Act (Doctors, dentists, + pharmacists) General Nursing Registration Act (Nurses + nursing assistants)	Under the current Medical Registration Act doctors and the other professions covered by the act do not pay annual fees and there is no readily accessible data concerning the registration status of these professionals. However, this act is currently being amended and will require payment of annual fees. Nurses must register (and pay fees) with the appropriate on an annual basis.
2d	Regulatory and Licensing requirements for foreign workers	Registration councils CARICOM	As above	Non-nationals follow the same criteria as nationals for registration.

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Item	Descriptive data	Source	Reference	Comments
2e	Main regulatory framework regarding unionization and collective actions	Dominica Law	Trade Unions Act	
2f	Contracting models (Is the permanent tenure in the public service vs flexible, short term contract	Ministry of Health		Positions are usually contracted on a temporary basis (2-years). Possible contract types are: permanent/ temporary/acting/contract (short-term)
2g	Selection process (Is there any selection process established or is the discretional appointment the norm?)	Public Service Commission	Public Service Commission Regulations	
2h	Salary, payment scales + relative values (i)Are there important differences between the medical and non-medical workers?	Public Service Commission		Pay scales are equivalent across ministries.
2i	Performance measurement: Is there any formal process of evaluation?	Public Services Commission	Employee Assessment + Development Review	Yes, but it is not always employed
2j	CSME regulatory and accreditation requirements for free circulation and contracting of personnel			Unknown
2k	Any data on migration			Unknown

3.4. Education System Related to HRH Quantitative Information

Residents of Dominica, have access to range of institutions for training:

- The University of the West Indies
- The Dominica State College

- Ross University School of Medicine (private off-shore university)
- All Saints University (private off-shore university)
- International training opportunities (Cuba, China, Venezuela)

Public University: The University of the West Indies

The system is complex with the five campus model of the University: three main campuses in Barbados (Cave Hill), Jamaica (Mona), and Trinidad & Tobago (St. Augustine), one further campus in Bahamas, and the Open Campus dedicated to distance education. The majority of health-sector training is offered in Jamaica and Trinidad & Tobago with Cavehill now offering the MBBS. The UWI admissions process is organised at the campus-level, and so information on applicants, admissions, and graduates requires access to three administrative centres. At the completion of this report, two centres have provided information (Barbados and Jamaica).

The Dominica State College

The Dominica State College has four faculties, Education, Applied Arts & Technology, Arts & Sciences and Health Sciences. In terms of HRH training, the last two faculties are responsible for teaching psychology and nursing, environmental health respectively.

Off-shore Universities: Ross University School of Medicine (RU), All Saints University School of Medicine (ASU)

No quantitative data were available for these institutions but some of the descriptive items are available online see Table 3.15 for details.

The number of applications and entrants to professional training programs

The number of applicants and entrants to The University of the West Indies for the academic years 2006-7 and 2007-8 is presented in Table 3.12. The equivalent number of applications and entrants to the Dominica State College (DSC) is presented in Table 3.13 .

Table 3.12: The number of applicants and the percentage admitted for nine course groups for ALL applicants, and for citizens and residents of Dominica

Training	2006-2007				2007-2008			
	Apply		Accept		Apply		Accept	
	ALL	Dom	ALL (%)	Dom	ALL	Dom	ALL (%)	Dom
Medical undergraduate	805	2	186 (23.1)	1	1,089	7	232 (21.3)	2
Medical postgraduate	110	2	55 (50.0)	1	131	2	48 (36.6)	0
Nursing undergraduate	716	4	385 (53.8)	3	1,034	37	532 (51.4)	31
Nursing postgraduate	58	3	28 (48.3)	2	74	9	46 (62.1)	3

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...continuation of Table 3.12.

Training	2006-2007				2007-2008			
	Apply		Accept		Apply		Accept	
	ALL	Dom	ALL (%)	Dom	ALL	Dom	ALL (%)	Dom
Public Health	78	1	40 (51.3)	0	94	1	50 (53.1)	1
Physical Therapy	83	0	20 (24.1)	0	177	3	51 (28.8)	0
Nutrition	27	0	11 (40.7)	0	35	0	22 (62.9)	0
Counselling	3	0	3 (100)	0	6	0	3 (50)	0
Radiography	45	0	31 (68.9)	0	205	0	27 (13.2)	0
TOTAL	1,925	12	759 (39.4)	7	2,845	59	1,011 (35.5)	37

Table 3.13: The number of applicants and percentage admitted to the Dominica State College (DSC)* - FHS = Faculty of Health Sciences, AD = Associate Degree

Programme name	Degree type	Places	Application	In training	Age range	Age range at graduation	Gender
General Nursing	AD	30	70	30	18-45	21-48	99% female
Practical Nursing	Cert.	Unknown					
Pre-Nursing	Cert.						
Mental Health Nursing	Cert.						
Environmental Health	AD						
RN to BSc	BSc						

* No details were available regarding the Psychology course in the Faculty of Arts & Sciences.

Data on the number of graduates are available from both the Jamaican and Barbados campuses of the University of the West Indies, and this information is reported in Table 3.14. Dominicans taking courses in medicine, nursing, pharmacy, and dentistry will also train in Trinidad—these data were not collected.

Table 3.14: The number of graduates from The University of the West Indies (Jamaica and Barbados campuses) from nine course groups for ALL applicants, and for citizens and residents of Dominica

Training	2003		2004		2005		2006	
	All	Dom	All	Dom	All	Dom	All	Dom
Medical undergraduate	96	0	90	0	76	0	127	0
Medical postgrad	33	0	30	0	33	0	32	0
Nursing undergrad	0	0	20	0	42	0	237	0
Nursing postgrad	0	0	38	0	20	0	29	0

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...continuation of Table 3.14.

Training	2003		2004		2005		2006	
	All	Dom	All	Dom	All	Dom	All	Dom
Public Health	16	0	33	0	33	0	21	0
Physical Therapy	11	0	7	0	12	0	16	0
Nutrition	2	0	10	0	9	0	1	0
Counselling	0	0	61	0	12	0	74	0
Radiography	0	0	0	0	0	0	0	0
TOTAL	188	0	289	0	237	0	537	0

3.5. Education System Related to HRH Descriptive Information

There are a range of institutions (both public and off-shore) involved in the training of HRH in Dominica.

Public: the University of the West Indies (UWI)

The Jamaican and Trinidadian campuses of the UWI train the majority of the professions associated with HRH, with the Cave Hill Campus involved in the training of social workers and psychologists as well as providing clinical training for the final two (clinical) years of the MBBS course. However since 2008, the University Medical School in Barbados has been upgraded to a full faculty (The Faculty of Medical Sciences) and now offers a 5-year MBBS program.

Public: Dominica State College (DSC)

DSC - Faculty of Health Sciences offers three degree types: Certificate (Practical Nursing, Mental Health Nursing), Associated Degree (General Nursing, Environmental Health) and a BSc (RN to BSc conversion). The Dominica State College was established by “The Dominica State College Act.2002” and is funded and regulated by the government. The college is led by a Board of Governors who use the Dominica State College Act 2002 as a governance framework with the Government providing accreditation and funding.

Off-shore Universities: All Saints University and Ross University

These institutions also provide HRH training and available descriptive data are detailed in Table 3.15.

Table 3.15: Descriptive data items for the off-shore universities

Item	Description	Institution	Reference
2a 3b	Regulatory tools/ accreditation	RU	The United States Department of Education, through its National Committee on Foreign Medical Education and Accreditation has determined that the accreditation standards employed by the Dominica Medical Board are comparable with those used to evaluate programs leading to the M.D. degree in the United States by the Liaison Committee on Medical Education. See http://www.rossu.edu/medical-school/documents/Med_Academic_Catalog.pdf
		ASU	http://allsaintsuniversity.org/dominica/index.php?option=com_content&task=view&id=30&Itemid=52
3h	Course duration	RU	http://www.rossu.edu/medical-school/academics/course.cfm
		ASU	http://allsaintsuniversity.org/dominica/index.php?option=com_content&task=view&id=23&Itemid=37
3i	Entry criteria	RU	http://www.rossu.edu/medical-school/admissions/getstarted.cfm
		ASU	http://allsaintsuniversity.org/dominica/index.php?option=com_content&task=view&id=17&Itemid=32
3k	Tuition cost	RU	http://www.rossu.edu/medical-school/documents/MedRatesBSClinical0910final.pdf
		ASU	http://allsaintsuniversity.org/dominica/index.php?option=com_content&task=view&id=19&Itemid=33

RU = Ross University; ASU - All Saints University.

The following detailed tables (Table 3.16 to Table 3.21) cover the descriptive data items in the “education for HRH” section of the core dataset (see Appendix 1 for details of the core dataset).

Table 3.16: Core Dataset Item 3C.
Number of HRH worker training degree courses offered across the three main campuses of the University of the West Indies (and see Appendix 3)

Professional category	Faculty	Campus	Postgraduate	Degree	Certificate/ Diploma
Doctor	Medical Sciences	Mona	29	1	
	Medical Sciences	Cavehill	6	1	
	Medical Sciences	St. Augustine	26	1	
	Grad School	Mona	1		
Nursing	Medical Sciences	Mona		4	2
	Medical Sciences	St. Augustine	6	1	
Dentistry	Medical Sciences	St. Augustine	1	1	
Pharmacy	Medical Sciences	St. Augustine	2	1	
Social work	Social Sciences	Mona		1	1
	Social Sciences	Cavehill	1	1	
	Social Sciences	St. Augustine	2	1	
Rehabilitation	Medical Sciences	Mona		1	
Technologists	Medical Sciences	Mona		1	
Public health practitioners	Medical Sciences	Mona	5		
	Medical Sciences	Cavehill	2		
	Medical Sciences	St. Augustine	4		
	Humanities & Education	St. Augustine	1		
	Pure & Applied Sciences	Mona	2		
	Grad School	Mona	1		
Nutritionists	Medical Sciences	Mona	3		
	Science & Agriculture	St. Augustine		2	
	Grad School	Mona	1		
Mental health	Social Sciences	Mona	2		1
	Social Sciences	Cavehill		1	
	Social Sciences	St. Augustine	5		1

Table 3.17: Core Dataset Item 3I. Entry requirements for each professional qualification

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Doctors	MS	Mona, CH, StA	Medicine & surgery	MBBS	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required
Nurses cont....	MS	Mona	Advance nursing administration	Cert.	Unavailable
			Advance nursing education	Cert.	Unavailable
			Generic nursing	BSc	5 CXC subjects or O-levels Applicants' academic qualifications must include the following subjects/levels:English language, Mathematics, Physics or Statistics One subject from: Biology, Human & Social Biology, Integrated Science Two or more subjects from:: Agricultural Science, Geography, Caribbean History, a modern language, Social Studies, Religious Education, Food & Nutrition, Home Economics Management, Principles of Accounts, Principles of Business, Information Technology or Chemistry. No Applicant can have more than 2 subjects at CXC General 3 or at GCE level C or a combination of both.

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Profession	Faculty	Campus	Course name	Degree	Entry requirements
...cont. Nurses	MS	Mona	Nursing education	BSc	Unavailable
			Post registered nurse	BSc	Unavailable
			Nursing administration	BSc	Unavailable
		StA	Nursing	BSc	Passes in at least five (5) subjects at CXC (CSEC) General Proficiency (Grades I or II and from 1998 Grade III) or GCE O-level or approved equivalents Passes in at least two (2) subjects at CXC (CAPE) or GCE A-level or approved equivalents OR Passes in four (4) GCE subjects or approved equivalents, of which at least three (3) must be at the A-level or equivalent
	FHS	DSC	Practical nursing	Cert.	4 CXC Ordinary Level or GCE O' level subject passes inc. English Language
			Mental health nursing	Cert.	4 CXC Ordinary Level or GCE O' level subject passes inc. English Language
			RN to BSc conversion	BSc	4 CXC Ordinary Level or GCE O' level subject passes inc. English Language
Dentistry	MS	StA	Dental surgery	DDS	See MBBS

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...continuation of Table 3.17.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Pharmacy	MS	St. A	Pharmacy	BSc	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required SCHEME D Passes in both units of Chemistry, and one other from Biology, Zoology, Physics or Mathematics at CAPE or GCE A- Level equivalent Passes in CSEC (CXC) General Proficiency or GCE O-level Mathematics and Physics also required
Social workers	SS	Mona	Social work (special)	BSc	Passes in five (5) subjects including English Language at CSEC (CXC) General Proficiency, Grades I or II and from 1998 Grade III) /GCE O-level AND passes in at least two (2) subjects at GCE A-level OR other approved Associate degrees, Diplomas and Certificates, including the two-year certificate in Social work from the UWI
		Covehill		BSc	
		St. A		BSc	
Environmental health	DSC	FHS	Environmental health	Assoc. Degree	4 CXC Ordinary Level or GCE O' level subject passes including English Language
Rehabilitation workers	MS	Mona	Physical therapy	BSc	CXC General Proficiency Examination Five (5) subjects - Compulsory - English Language, Mathematics Caribbean Advanced Proficiency Examination (CAPE) / Other Requirements Any two 2-unit CAPE, or tow GCE Advanced Level passes from the following list of subjects: Physics, Chemistry, Mathematics, Biology

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...continuation of Table 3.17.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Technologists	MS	Mona	Diagnostic imaging	BSc	Possess a minimum of six(6) CSEC CXC subjects, grades 1-3or equivalents in the following: English Language, Mathematics or Physics, Biology or Human Biology, one other science subject, and two other subjects.
Nutritionists	Sci & Ag	StA	Human nutrition + dietetics (Special)	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75
			Institutional and community nutrition	BSc	
Mental health	SS	Mona	Psychology	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75
		Cavehill	Psychology (Special)	BSc	
		StA	Psychology	BSc	

Notes: Mona = Mona campus, Jamaica; CH = Cave Hill campus, Barbados; StA = St. Augustine campus, Trinidad; MS = Faculty of Medical Sciences; SS = Faculty of Social Science; Sci & Ag = Faculty of Science and Agriculture; DSC = Dominica State College; FHS = Faculty of Health Sciences; FAS = Faculty of Arts & Sciences.

Table 3.18: Core Dataset Items 3C (DSC only), 3H and 3K.
Duration of course and tuition costs for the University of the West Indies and the Dominica State College (DSC)

Profession	Faculty	Campus	Course name	Degree	Duration (yrs)	Tuition (ECDS) (for nationals)
Doctors	MS	Mona, CH, StA	Medicine & surgery	MBBS	4/5	145,973[a]
	MS	Mona	Advanced nursing administration	Cert.	Unavailable	Unavailable
	MS	Mona	Advanced nursing education	Cert.	Unavailable	Unavailable
	MS	Mona	Generic nursing	BSc	3	Unavailable
	MS	Mona	Nursing education	BSc	3	Unavailable
	MS	Mona	Post registered nurse	BSc	3	Unavailable
	MS	Mona	Nursing administration	BSc	3	Unavailable
	MS	StA	Nursing	BSc	3	Unavailable
	FHS	DSC	Practical nursing	Cert.	Unavailable	See website [b]
	FHS	DSC	Mental health nursing	Cert.	Unavailable	See website [b]
	FHS	DSC	Midwifery	Cert.	Unavailable	See website [b]
	FHS	DSC	General nursing	Assoc. Deg	Unavailable	See website [b]
	FHS	DSC	RN to BSc conversion	BSc	Unavailable	See website [b]
Dentistry	MS	StA	Dental surgery	DDS	4	Unavailable
Pharmacy	MS	StA	Pharmacy	BSc	3	Unavailable
Social workers	SS	Mona, CH, StA	Social work (special)	BSc	3	46,592[c]
Environmental health	FHS	DSC	Environmental health	Cert.	Unknown	See website [b]
Rehabilitation workers	MS	Mona	Physical therapy	BSc	3	Unavailable
Technologists	MS	Mona	Diagnostic imaging	BSc	3	Unavailable
Nutritionists	Sci & Ag	StA	Human nutrition and dietetics (Special)	BSc	3	46,592 [c]
	Sci & Ag	StA	Institutional and community nutrition	BSc	3	46,592 [c]

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...continuation of Table 3.18.

Profession	Faculty	Campus	Course name	Degree	Duration (yrs)	Tuition (ECDS) (for nationals)
Mental health	SS	Mona	Psychology	BSc	3	46,592 [c]
	SS	Cavehill	Psychology (Special)	BSc	3	46,592 [c]
	SS	StA	Psychology	BSc	3	46,592 [c]
	FHS	DSC	Psychology	Cert.	Unknown	See Website [b]
Traditional/Alternative Health Practitioners						
Other Relevant Groups						

Notes: Mona = Mona campus, Jamaica; CH = Cave Hill campus, Barbados; StA = St. Augustine campus, Trinidad; MS = Faculty of Medical Sciences; SS = Faculty of Social Science; Sci & Ag = Faculty of Science and Agriculture; DSC = Dominica State College; FHS = Faculty of Health Sciences; FAS = Faculty of Arts & Sciences.

[a] For those from contributing countries only up to 83842 ECDS may be paid by the national's government.

[b] http://dsc.dm/index.php?option=com_content&task=view&id=37&Itemid=46

[c] For those from contributing countries only up to 45428 ECDS may be paid by the national's government

Items 3n to 3s - Professional training

No data were available from The University of the West Indies regarding these items. For the Dominica State College only minimal data were available and these are detailed below.

Table 3.19: Core Dataset Items 3N to 3S. Professional training

Item	Description	DSC
3p	Curriculum matched to epidemiological profile	Yes
3r	Curriculum renewal process	Course content is reviewed by the Curriculum Committee
3s	Lines of communication between curriculum development and HRH needs	Yes

Items 3t, 3u, 3v, 3x - Professional development training

At the hospital continuing professional development training takes place on a Thursday in conjunction with Ross University School of Medicine, this training has a set schedule. The Ministry of Health also runs in-service training and additional ad hoc training is provided as the need arises. Health professionals in the public sector may also have access to regional training opportunities. On completion of the training, staff members are encouraged to disseminate what they have learnt to their colleagues.

Items 3w, 3y - Fellowships

Scholarship programmes are run by the governments of Cuba, China and Venezeula. The Ministry of Education, Human Resource Development, Youth Affairs and Sport (MoE) is responsible for processing the applications for these scholarships. For Cuba and China the MoE shortlists applicants in accordance with the criteria then the sponsoring government makes final selection. For Cuba a minimum of 2 A-levels are required (preferably sciences) consideration to socio-economic status is also given. In 2007, 20 scholarships to China were awarded, of these, 3 were related to HRH: 1 nursing, 1 medical psychology and 1 psychology. In 2009, the total number of scholarships dropped to 9 with 2 of these in medicine. Details of HRH related scholarships awarded for Cuba and Venezuela, and expected graduates are detailed in the tables below.

Table 3.20: Number of students currently enrolled via scholarship schemes

Area of study	Cuba	Venezuela	Total
Medicine	20[a]	7	27
Nursing	0	0	0
Medicine related field	12	0	12
Total	32	7	39

[a] Includes 1 Radiology specialty.

Table 3.21: Expected graduates from scholarships

Area of study	Venezuela	Cuba	
	2008	2009	2010
Medicine			1
Dentistry			1
Pharmacy		1	
Nursing	4		
Physiotherapy	1		
Total	5	1	2

In addition to the overseas scholarships the government of Dominica also provide scholarships for high achievers to attend the University of the West Indies. However, these can be awarded for any field of study. The off-shore universities Ross and All Saints also provide 4 and 2 scholarships respectively. Additionally, All Saints offer a 50% discount on tuition costs for residents of Dominica.

4. Grenada - Results

4.1. Grenada Notes

Grenada is situated in the southeastern Caribbean and consists of the main islands of Grenada, Carriacou, Petite Martinique and six smaller islands. It has a total land area of just over 344 km^2 and comprises 7 (6 in Grenada plus Carriacou) administrative parishes. It has a population density of 294 people per km^2. The United Nations Human Development Index (a standard measure of human development, focusing on education, healthcare, income and employment) placed Grenada 74th in a league table of nations. At the 2001 census Grenada had a population of 103,137 (adjusted for undercount). From the same census, the working population (aged 15 and older in employment) was 38,172 (with a total workforce of 46,969). The Grenada statistical office does not have a definition for “urban” and “rural”. The most densely populated parishes are: St. George and St. Andrew. The capital St. George is home to General Hospital. For the purposes of health services management the country is divided into 6 health districts. Each district has a health centre and a network of medical stations. At the 2001 census the Grenada population was primarily of African descent (89%) and so data stratifications by race or ethnicity were not applied.

Figure 4.1: The six parishes of main island Grenada

4.2. Human Resources in Health (HRH) Quantitative Information

4.2.1. Public-sector HRH workers

Public-sector HRH workers by facility type

Grenada has a public-sector health service that is free to all residents at the point of care. The healthcare workers that make this possible are documented and maintained via the Government payroll system, using a well known off-the-shelf database —Smartstream. However, SmartStream data was not available for this project. Some minimal information was obtained from the budget estimates for the Ministry of Health. For national comparisons, these jobs have been grouped into 11 occupational categories defined by the project at its outset.[9]

The General Hospital, the public-sector tertiary referral centre for the entire country, is the largest employer of healthcare workers, with 433 staff or 44.5% of the entire public-sector HRH workforce. The health districts together employ another 180 (18.5%) of the HRH workforce (Table 4.1). There are 2 rural/district hospitals, 6 medical centres and 30 medical stations across the six health districts with varying catchment populations.

Table 4.1: Number of HRH workers in each public-sector facility group

Public sector facility type	Number of workers (%)
General Hospital (GH)	433 (44.5)
Community Health Services (Health Districts) [a]	180 (18.5)
Ministry of Health	60 (6.2)
District hospitals	98 (10.1)
Princess Alice Hospital	63 (6.5)
Princess Margaret Hospital	35 (3.4)
Richmond Hill Institutions	156 (16.0)
Mount Gay	100 (10.3)
Richmond Home	41 (4.2)
Carlton House	15 (1.5)
Environmental Health Services	28 (2.9)
Dental Services	19 (2.0)
TOTAL workers	974

[a] There are 6 health districts (St. George's, St. David's, St Andrew's, St Patrick's, St John/St Mark's, Carriacou/Petite Martinique with 1 health centre per district and a total of 30 medical stations

9. The 12 PAHO occupation categories are: Medical doctors, Nurses and midwives, Dentists and allied trades, Pharmacists and allied trades, Social workers, Rehabilitation workers, Laboratory Technologists, Public health practitioners, Nutritionists, Mental-health practitioners, Other health workers.

Public-sector HRH workers by major occupational category

Grenada has 974 public-sector healthcare workers, and the numbers, stratified by occupational category are presented in Appendix 2. These numbers are presented by occupational category in Table 4.2. Clinical doctors represented 7% of the total public sector HRH workforce, and nurses and midwives represented 41% of the workforce. All health management and support workers represented 35%. This proportion of management and support workers is roughly the same as the world average of 33%, reported by the WHO in 2006 (see Table 4.2).

In Table 4.2 and Table 4.3 these HRH counts have been used with population data from the Grenada 2001 census to present two key summary measures: HRH worker density per 10,000 population and the number of people in Grenada per HRH worker. As SmartStream data were not available stratification by age and gender has not been possible.

In the public sector, there are 7.6 medical practitioners per 10,000 population (or 1 doctor for every 1,315 Grenadians). With 398 nurses in the public-health system (a density of 43.9 per 10,000) there is one nurse for every 228 Grenadian and almost 6 nurses for each doctor.

A fourth major category—other health workers—includes the many health managers and support workers involved in maintaining healthcare and healthcare facilities; there are 37.7 other health workers per 10,000 population.

"There are 7.6 doctors and 43.9 nurses for every 10,000 people in Grenada"

Table 4.2: Public-sector HRH workers per 10,000 population by major occupational category

Occupation	Number of workers (%)	Density per 10,000 population (95% CI)	Population per worker
Medical doctors	69 (7.1)	7.60 (5.92 – 9.62)	1,315
Nurses and midwives [a]	398 (40.9)	43.86 (39.66 – 48.39)	228
Dentists and allied	19 (2.0)	2.09 (1.26 – 3.27)	4,776
Pharmacists and allied	21 (2.2)	2.31 (1.43 – 3.54)	4,321
Social workers	1 (0.1)	0.11 (0 – 0.61)	90,739
Rehabilitation workers	5 (0.5)	0.55 (0.18 – 1.29)	18,148
Technologists	29 (3.0)	3.20 (2.14 – 4.59)	3,129
Public health practitioners	73 (7.5)	8.05 (6.31 – 10.11)	1,243
Nutritionists	1 (0.1)	0.11 (0 – 0.61)	90,739
Mental-health practitioners	16 (1.6)	1.76 (1.01 – 2.86)	5,671
Other health workers	342 (35.1)	37.69 (33.80 – 41.90)	265
ALL health workers	974	107.34 (100.71 – 114.30)	93

[a] Nurses and midwives have the same occupational groupings in the Government payroll system.

Table 4.3: Public-sector HRH workers
per 10,000 population by major occupational groupings

Occupation	Number of workers	Density per 10,000 population (95% CI)	Population per worker
Doctors, nurses, midwives	467	51.5 (46.9 - 56.3)	194
ALL health workers (excluding "other health workers")	632	69.7 (64.3 - 75.3)	144
All health workers	974	107.3 (100.7 - 114.3)	93

[a] Nurses and midwives have the same occupational groupings in the Government payroll system.

Public-sector HRH workers and the Grenada workforce

The working population in Grenada was an estimated 38,172 in 2005. The number of HRH workers as a percentage of this Grenada workforce is therefore 974 / 38,172 (2.6%).

Doctors and nurses in the public-sector: primary versus tertiary care

Clinical doctors are primarily employed at the General Hospital (GH)—the country's only tertiary referral centre. Other health care providers are also employed across the health districts at the district hospitals, health centres and medical stations. Table 4.4 describes the density of doctors, nurses, and all healthcare providers at these facility types. The densities vary considerably between facility types, with the lowest densities for the primary care District Health Services. There are roughly four times more doctors and nurses and twice more healthcare providers at the General Hospital compared to the District Health Services.

Table 4.4: Nurses and clinical doctors per 10,000 population in facility types

Facility type	Number	Density per 10,000	Population per worker
Doctors			
General hospital	46	5.1	1,973
District Hospitals / Specialist Centres	8	0.9	11,342
Community Health Services	13	1.4	6,980
Nurses and Midwives			
General Hospital	224	24.7	405
District Hospitals / Specialist Centres	116	12.8	782
Community Health Services	57	6.3	1,592
All healthcare providers			
General hospital	278	30.6	326
District Hospitals / Specialist Centres	144	15.9	630
Community Health Services	135	14.9	672

Doctors in the public sector: specialist subgroups

Data regarding the medical specialties in Grenada were obtained from the Budget Estimates for the Ministry of Health.

Table 4.5: Summary of established posts and vacancies with details of full time senior clinical doctors by specialty and facility

Facility	Established position	Non-established positions	Vacant positions [a]	DTO	Specialty (all part of DTO)	No.
Administration	67	2	3	10	-	-
Community Health Service	227	0	3	109	Maxillo surgeon [b]	1
All Hospitals [c]	682	5	6	44	Physician Specialist [d]	2
					Surgeon Specialist [d]	2
					Obstetrician / Gynaecologist [d]	3
					Anaesthetist [d]	3
					Orthopaedic Surgeon [d]	2
					Paediatrician [d]	2
					ENT Specialist [d]	1
					Ophthalmologist [d]	1
					Pathologist [d]	1
					Radiologist [d]	1
					Psychiatrist [e]	1

[a] Only 1 position is HRH

[b] Dental Service

[c] All hospitals = General Hospital, Princess Alice and Princess Royal District Hospitals and the 3 Richmond Hill Institutions (Carlton House, Mount Gay & Richmond Home)

[d] General Hospital

[e] Richmond Hill Institution - Mount Gay

No data were available regarding sessional staff. Information regarding vacancies and established posts were only available in summary format.

4.2.2. Private-sector HRH workers

Like many countries operating a social healthcare system, alternative private healthcare options exist in Grenada. Minimal regulations and a lack of standardised data collection mean that information on healthcare professionals in the private sector is limited to estimates of professions for which registration is required to practice a trade. There are three registration councils: the Grenada Medical Board (covering medical doctors, dentists and vets), the Pharmacy Council (for pharmacists) and the General Nursing Council (nurses and nursing assistants). However, the Grenada Medical Board does not require annual renewal of registration and there is no annual list of registered doctors in the Government Gazette. The only list available details

the number of doctors registered (110) over an un-specified time period. In contrast, the Nursing Council does require annual payment of fees for continued registration and a list of registered nurses was obtained from the Gazette. Additional information was also available from the Nursing Association that has 360 nurse members and 160 nursing assistants. Pharmacists are also required to renew registration on an annual basis, but the list of registered individuals is not printed in the Gazette. Details of those employed in the private sector were obtained in hardcopy format from the Yellow Pages or conversations with members of the relevant professional associations. There is one private hospital, but no data were available. The table below summarises data obtained from the Ministry of Health.

Table 4.6: HRH workers in public and private healthcare in Grenada by occupational category

Occupation	Number in public sector	Estimated full/part-time private-sector workers [a]	Total
Medical doctors	69	25	110 [b]
Dentists	13	16	29
Nurses/nursing assistants	305/164 [c]	10/0	315/164
Pharmacists	18	22	50

Notes:

[a] From Yellow Pages/conversations

[a] Figures from Ministry of Health

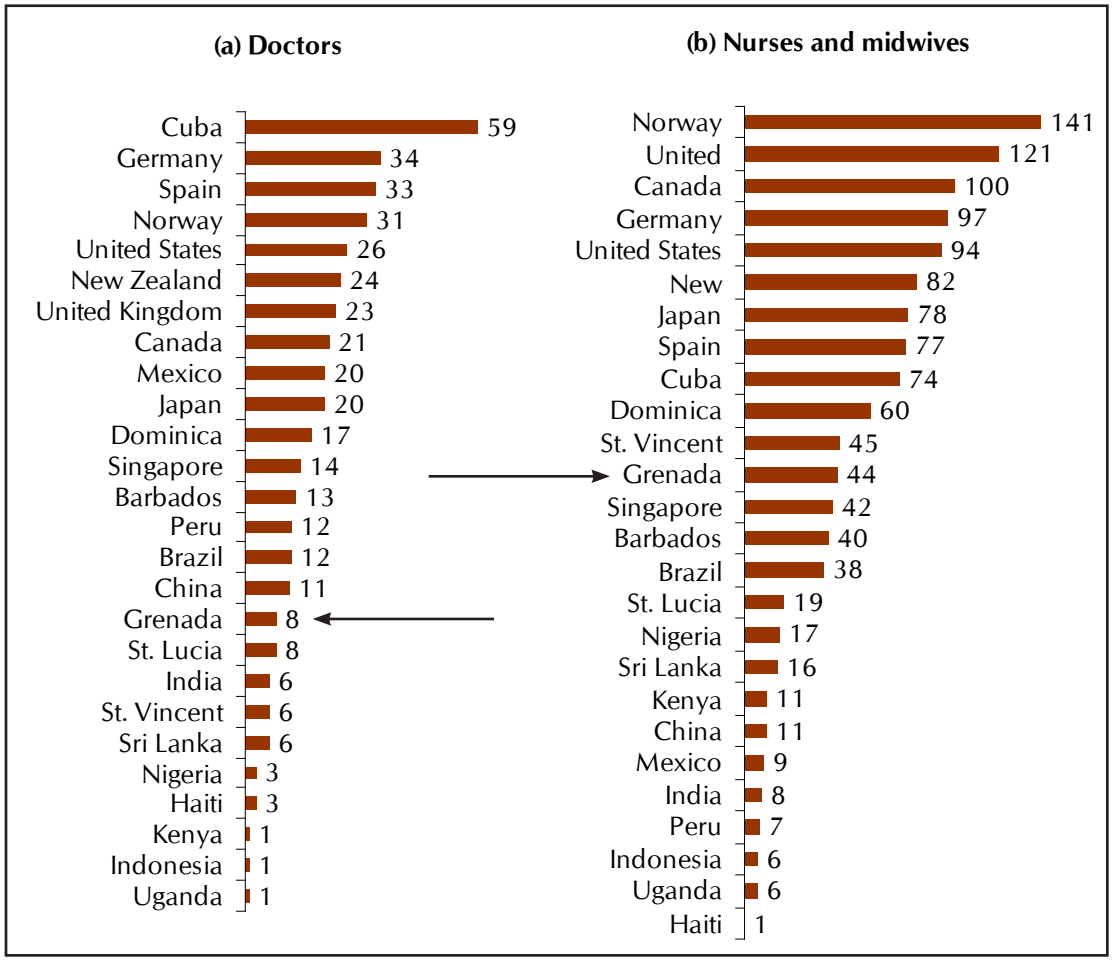
[c] From Gazette

4.2.3. Comparing Grenada HRH workers with international estimates

The World Health Organization's 2006 annual report[10] focused on human resources for health, providing health workforce estimates worldwide. In Figure 4.2 the density of doctors and nurses per 10,000 population is presented for Grenada (using data from this report[11]), and a further sample of 24 countries (using data from the WHO annual report).

10. World Health Organization. The World Health Report 2006: Working Together For Health. WHO Press, Geneva.
11. Grenada data uses public-sector estimates only.

Figure 4.2: The number of doctors per 10,000 population
for Grenada and a sample of 21 countries worldwide



4.3. Human Resources in Health (HRH) - Descriptive Information

4.3.1. Regulatory Framework and Management Practices

For the public sector much of the regulatory tools concerning health employment are described in the Public Service Commission Act and Statutory Rules & Orders and other employment related acts. With regard to HRH management, it is the Public Service Commission Statutory Rules & Orders that are the most relevant. Legislation is also in place for professional registration and unionisation. Table 4.7 details which legislation is associated with the various items of the core data set (ITEMS 3A to 3K).

Table 4.7: Descriptive data required concerning public sector management practices of human resources in health, and categories of potential information sources

Item	Descriptive data	Source	Reference	Comments
2a	Regulatory tools concerning University training programmes, accreditation, approval and financing.	University of the West Indies (UWI)		UWI's MBBS has been accredited by the Caribbean Accreditation Authority for Education in Medicine and other Health Professionals (CAAM-HP). CAAM-HP are also responsible for the accreditation of dental schools.
		St George's University School (off-shore)		Accredited by the Caribbean Accreditation Authority for Education in Medicine and the Health Professions - CAAM-HP [a] The National Committee on Foreign Medical Education and Accreditation (of the USDOE), in conjunction with the approval of the State of New York, has deemed Grenada's accreditation standards to be equivalent to those utilized by the U.S.
2b	Main regulatory tools for health employment: career paths selection systems, performance management and evaluation.	Public Service Commission	Public Service Commission Statutory Rules & Orders	
2c	Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)	Grenada Law	Medical Practitioners, Dentist and Veterinary Surgeons Registration Act. General Nurses and Midwives Registration Act (includes nursing assistants). Pharmacy Act	Under the current Medical Registration Act doctors and the other professions covered by the act do not pay annual fees and there is no readily accessible data concerning the registration status of these professionals. However, this act is currently being amended and will require payment of annual fees. Nurses and pharmacists must register (and pay fees) with the appropriate on an annual basis.
2d	Regulatory and Licensing requirements for foreign workers	Registration councils CARICOM	As above.	Non-nationals follow the same criteria as nationals for registration.
2e	Main regulatory framework regarding unionization and collective actions	Grenada Law	The Labour Relations Act (1999) & amendments	

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...continuation of table 4.7.

Item	Descriptive data	Source	Reference	Comments
2f	Contracting models (Is the permanent tenure in the public service vs flexible, short term contract	Ministry of Health	The Employment Act (1999) Part V Sect 29	Positions are usually contracted on a temporary basis (2-years). Possible contract types are: permanent/temporary/ acting/contract (short-term)
2g	Selection process (Is there any selection process established or is the discretional appointment the norm?)	Public Service Commission	Public Service Commission Statutory Rules & Orders Part III	
2h	Salary, payment scales + relative values (i)Are there important differences between the medical and non-medical workers? (ii)Is the salary scale in health sector competitive with employment in other sectors?	Public Service Commission		Unavailable
2i	Performance measurement: Is there any formal process of evaluation?	Public Services Commission	The Public Service Grenada - Performance Appraisal Report	Yes, but it is not always employed
2j	CSME regulatory and accreditation requirements for free circulation and contracting of personnel			Unknown
2k	Any data on migration			Unknown

[a] The UK Government recognises CAAM as the official accreditation authority for New and Developing Medical Schools in the British Overseas Territories in the Caribbean.

4.4. Education System Related to HRH Quantitative Information

4.4.1. The training environment for future Grenadian healthcare workers

Residents of Grenada, have access to range of institutions for training:

- The University of the West Indies
- The T.A. Marryshow Community College (TAMCC)
- St. George's University (off-shore university)
- International training opportunities (Cuba, USA)

Public University: The University of the West Indies

The system is complicated somewhat by the five campus model of the University: three main campuses in Barbados (Cave Hill), Jamaica (Mona), and Trinidad and Tobago (St. Augustine), one further campus in Bahamas, and the Open Campus dedicated to distance education. The majority of health-sector training is offered in Jamaica and Trinidad and Tobago with Cavehill now offering the MBBS. The UWI admissions process is organised at the campus-level, and so information on applicants, admissions, and graduates requires access to three administrative centres. At the completion of this report, two centres have provided information (Barbados and Jamaica).

The T.A. Marryshow Community College (TAMCC)

TAMCC has three campuses: Tanteen, Carriacou and St Patrick's. The School of Arts, Science & Professional Studies based at the Tanteen Campus is responsible for HRH related training.

Off-shore University: St. George's University

No quantitative data were available for this institution but some of the descriptive items are available online (see Table 4.14).

The number of applications and entrants to professional training programs

The number of applicants and entrants to The University of the West Indies for the academic years 2006-2007 and 2007-2008 is presented in Table 4.8. The equivalent number of applications and entrants to the TAMCC is presented in Table 4.9 .

Data on the number of graduates are only available from the Jamaican and Barbados campuses of the University of the West Indies, and this information is reported in Table 4.10. Grenadians taking courses in medicine, nursing, pharmacy, and dentistry will also train in Trinidad—these data have not been collected.

Table 4.8: The number of applicants and the percentage admitted for nine course groups for ALL applicants, and for citizens of Grenada and residents (GRD)

Training	2006-2007				2007-2008			
	Apply		Accept		Apply		Accept	
	All	GRD	All (%)	GRD	All	GRD	All (%)	GRD
Medical undergraduate	805	0	186 (23.1)	0	1,089	0	232 (21.3)	0
Medical postgraduate	110	0	55 (50.0)	0	131	1	48 (36.6)	0
Nursing undergraduate	716	1	385 (53.8)	1	1,034	16	532 (51.4)	16
Nursing postgraduate	58	0	28 (48.3)	0	74	0	46 (62.1)	0
Public Health	78	0	40 (51.3)	0	94	1	50 (53.1)	1
Physical Therapy	83	0	20 (24.1)	0	177	0	51 (28.8)	0
Nutrition	27	0	11 (40.7)	0	35	0	22 (62.9)	0
Counselling	3	0	3 (100)	0	6	0	3 (50)	0
Radiography	45	2	31 (68.9)	1	205	0	27 (13.2)	0
Total	1,925	3	759 (39.4)	2	2,845	18	1,011 (35.5)	17

Table 4.9: The number of applicants and percentage admitted to the TAMCC

Programme name	Degree type	Seat 2009 [a]	Applied/ accepted b	In training by gender Male/Female	No graduates 2009 [a]
Nursing	AD	31	44/32	2/30	46
Nursing assistant	Cert.	0	0		25
Midwifery	Post-Basic Cert.	23	23/23	0/21	26
Pharmacy	AD	13	16/13	4/10	5
Social work	AD	-	80/65	0/9	-

[a] As many students that meet the matriculation requirements for the Associate Degrees in Pharmacy are accepted into the programme. For nursing courses the available seats have been determined and filled by the Ministry of Health.

[b] Reasons for rejecting application - failure to meet matriculation requirements + available seats have been filled by more suitable applicants.

Table 4.10: The number of graduates from The University of the West Indies (Jamaica and Barbados campuses) from nine course groups for ALL applicants, and for citizens and residents of Grenada

Training	2003		2004		2005		2006	
	ALL	GRD	ALL	GRD	ALL	GRD	ALL	GRD
Medical undergraduate	96	0	90	0	76	0	127	0
Medical postgraduate	33	0	30	0	33	0	32	0
Nursing undergraduate	0	0	20	0	42	0	237	0
Nursing postgraduate	0	0	38	0	20	0	29	0
Public Health	16	0	33	0	33	0	21	0

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...continuation of table 4.10.

Training	2003		2004		2005		2006	
	ALL	GRD	ALL	GRD	ALL	GRD	ALL	GRD
Physical Therapy	11	0	7	0	12	0	16	0
Nutrition	2	0	10	0	9	0	1	0
Counselling	0	0	61	0	12	0	74	0
Radiography	0	0	0	0	0	0	0	0
Total	158	0	289	0	237	0	537	0

4.5. Education System Related to HRH Descriptive Information

Both the University of the West Indies and The TAMCC are involved in the training of HRH in Grenada. Until recently, the Jamaican and Trinidadian campuses of the UWI trained the majority of the professions associated with HRH, with the Cave Hill Campus involved in the training of social workers and psychologists. However, since 2008 the School of Clinical Medicine in Barbados was upgraded to a full faculty (The Faculty of Medical Sciences) and now offers a 5-year MBBS program.

TAMCC offers three degree types: Certificate (Nursing Assistant, General Nursing), Associated Degree (General Nursing, Pharmacy) and Post Basic Certificate (Midwifery).

The following detailed tables (Table 4.11 to Table 4.16) cover the descriptive data items in the “education for HRH” section of the core dataset (see Appendix 1 for details of the core dataset).

Table 4.11: Core Dataset Item 3C. Number of HRH worker training degree courses offered across the three main campuses of the University of the West Indies (and see Appendix 3)

Professional category	Faculty	Campus	Post-graduate	Degree	Cert./ Dip.
Doctor	Medical Sciences	Mona	29	1	
	Medical Sciences	Cavehill	6	1	
	Medical Sciences	St .Augustine	26	1	
	Grad School	Mona	1		
Nursing	Medical Sciences	Mona		4	2
	Medical Sciences	St. Augustine	6	1	
Dentistry	Medical Sciences	St. Augustine	1	1	
Pharmacy	Medical Sciences	St. Augustine	2	1	
Social work	Social Sciences	Mona		1	1
	Social Sciences	Cavehill	1	1	
	Social Sciences	St. Augustine	2	1	
Rehabilitation	Medical Sciences	Mona		1	
Technologists	Medical Sciences	Mona		1	
Public health practitioners	Medical Sciences	Mona	5		
	Medical Sciences	Cavehill	2		
	Medical Sciences	St. Augustine	4		
	Humanities& Education	St. Augustine	1		
	Pure & Applied Sciences	Mona	2		
	Grad School	Mona	1		
Nutritionists	Medical Sciences	Mona	3		
	Science & Agriculture	St. Augustine		2	
	Grad School	Mona	1		
Mental Health	Social Sciences	Mona	2		1
	Social Sciences	Cavehill		1	
	Social Sciences	St. Augustine	5		1

Table 4.12: Core Dataset Item 3I. Entry requirements for each professional qualification

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Doctors	MS	Mona, CH StA	Medicine & surgery	MBBS	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required
Nurses...	MS	Mona	Advanced nursing administration	Cert.	Unavailable
			Advanced nursing education	Cert.	Unavailable
			Generic nursing	BSc	5 CXC subjects or O-levels Applicants' academic qualifications must include the following subjects/ levels:English language, Mathematics, Physics or Statistics One subject from: Biology, Human & Social Biology, Integrated Science Two or more subjects from:: Agricultural Science, Geography, Caribbean History, a modern language, Social Studies, Religious Education, Food & Nutrition, Home Economics Management, Principles of Accounts, Principles of Business, Information Technology or Chemistry. No Applicant can have more than 2 subjects at CXC General 3 or at GCE level C or a combination of both.
			Nursing education	BSc	Unavailable

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...continuation of Table 3.12.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
...Nurses	MS	Mona	Post registered nurse	BSc	Unavailable
			Nursing administration	BSc	Unavailable
		StA	Nursing	BSc	Passes in at least five (5) subjects at CXC (CSEC) General Proficiency (Grades I or II and from 1998 Grade III) or GCE O-level or approved equivalents Passes in at least two (2) subjects at CXC (CAPE) or GCE A-level or approved equivalents OR Passes in four (4) GCE subjects or approved equivalents, of which at least three (3) must be at the A-level or equivalent
	TAMCC	Tanteen	Nursing	Assoc. Deg.	5 CXC including English Chemistry & Maths
			Midwifery	P-B Cert.	General Nursing Certificate
			Nursing assistant	Cert.	School leaving certificate
			General nursing	Cert.	5 CXC passes including English, Maths and Chemistry with interview by MoH
Dentistry	MS	StA	Dental surgery	DDS	See MBBS

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...continuation of Table 3.12.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Pharmacy	MS	StA	Pharmacy	BSc	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required SCHEME D Passes in both units of Chemistry, and one other from Biology, Zoology, Physics or Mathematics at CAPE or GCE A- Level equivalent Passes in CSEC (CXC) General Proficiency or GCE O-level Mathematics and Physics also required
	TAMCC	Tanteen	Pharmacy	Assoc. Deg.	5 CXC passes including English, Maths, Chemistry and Biology
Social workers	SS	Mona	Social work (special)	BSc	Passes in five (5) subjects including English Language at CSEC (CXC) General Proficiency, Grades I or II and from 1998 Grade III) /GCE O-level AND passes in at least two (2) subjects at GCE A-level OR other approved Associate degrees, Diplomas and Certificates, including the two-year certificate in Social work from the UWI
		CH			
		StA	Social work (special)	BSc	
	TAMCC	Tanteen	Social work	Assoc. Deg.	4 CXC passes including English

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...continuation of Table 3.12.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Rehabilitation workers	MS	Mona	Physical therapy	BSc	CXC General Proficiency Examination Five (5) subjects - Compulsory - English Language, Mathematics Caribbean Advanced Proficiency Examination (CAPE) / Other Requirements Any two 2-unit CAPE, or tow GCE Advanced Level passes from the following list of subjects: Physics, Chemistry, Mathematics, Biology
Technologists	MS	Mona	Diagnostic imaging	BSc	Possess a minimum of six(6) CSEC CXC subjects, grades 1-3or equivalents in the following: English Language, Mathematics or Physics, Biology or Human Biology, one other science subject, and two other subjects.
Nutritionists	Sci. & Ag.	StA	Human nutrition + dietetics (special)	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75
			Institutional and community nutrition	BSc	
Mental health	SS	Mona	Psychology	BSc	
		CH	Psychology (special)	BSc	
		StA	Psychology	BSc	
Alternative health practitioners	Not applicable				
Other relevant groups	Not applicable				

Mona = Mona campus, Jamaica; CH = Cave Hill campus, Barbados; StA = St. Augustine campus, Trinidad; MS = Faculty of Medical Sciences; DCC = Grenada Community College; SS = Faculty of Social Science; Sci & Ag = Faculty of Science and Agriculture; TAMCC = TA Marryshow Community College.

Table 4.13: Core Dataset Items 3C (TAMCC only), 3H and 3K.
Duration of course and tuition costs for the University of the West Indies, and the T.A. Marryshow Community College (TAMCC)

Profession	Faculty	Campus	Course name	Degree	Duration (yrs)	Tuition (ECDS) (for nationals)
Doctors	MS	Mona, CH, StA	Medicine & surgery	MBBS	4/5	145,973 [a]
Nurses	MS	Mona	Advanced nursing administration	Cert.	Unavailable	Unavailable
	MS	Mona	Advanced nursing education	Cert	Unavailable	Unavailable
	MS	Mona	Generic Nursing	BSc	3	Unavailable
	MS	Mona	Nursing education	BSc	3	Unavailable
	MS	Mona	Post registered nurse	BSc	3	Unavailable
	MS	Mona	Nursing administration	BSc	3	Unavailable
	MS	StA	Nursing	BSc	3	Unavailable
	TAMCC	Tanteen	General Nursing	Cert	Unavailable	910
	TAMCC	Tanteen	Nursing Assistant	Cert	1 year	230
	TAMCC	Tanteen	Midwifery	Cert	10 months	502
	TAMCC	Tanteen	General nursing	Assoc. Deg	3	230/yr
Dentistry	MS	StA	Dental surgery	DDS	4	Unavailable
Pharmacy	MS	StA	Dental surgery	BSc	3	Unavailable
	TAMCC	Tanteen	Pharmacy	Assoc. Deg.	3	1123/yr
Social workers	SS	Mona, CH, StA	Social work (special)	BSc	3	46,592 [b]
	TAMCC	Tanteen	Social work	Assoc. Deg.	3-4	275/course
Rehabilitation workers	MS	Mona	Physical therapy	BSc	3	Unavailable
Technologists	MS	Mona	Diagnostic imaging	BSc	3	Unavailable

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...continuation of Table 3.13.

Profession	Faculty	Campus	Course name	Degree	Duration (yrs)	Tuition (ECDS) (for nationals)
Nutritionists	Sci. & Ag.	StA	Human nutrition and dietetics (special)	BSc	3	46,592 [b]
	Sci. & Ag.	StA	Institutional and community nutrition	BSc	3	46,592 [b]
Mental health	SS	Mona	Psychology	BSc	3	46,592 [b]
	SS	CH	Psychology (special)	BSc	3	46,592 [b]
	SS	StA	Psychology	BSc	3	46,592 [b]
Traditional/Alternative health practitioners						
Other relevant groups						

[a] For those from contributing countries only up to 83842 ECDS may be paid by the national's government.

[b] For those from contributing countries only up to 45428 ECDS may be paid by the national's government.

Mona = Mona campus, Jamaica; CH = Cave Hill campus, Barbados; StA = St. Augustine campus, Trinidad; MS = Faculty of Medical Sciences; DCC = Grenada Community College; SS = Faculty of Social Science; Sci. & Ag. = Faculty of Science and Agriculture; TAMCC = TA Marryshow Community College.

Table 4.14: Descriptive data items for St. George's University (off-shore)

Item	Description	Reference
2a 3a, b	Regulatory tools/ accreditation	http://www.sgu.edu/about-sgu/accreditations-and-approvals.html
3c	Programs offer	http://www.sgu.edu/school-of-medicine/index.html
3h	Course duration	http://www.sgu.edu/school-of-medicine/sgu-medical-sciences-curriculum.html http://www.sgu.edu/school-of-medicine/NursingProgram.html
3i	Entry criteria	http://www.sgu.edu/school-of-medicine/premedical-sciences-admissions.html
3k	Tuition cost	http://www.sgu.edu/financial-services/som-tuition.html
3w/y	Scholarships	http://www.sgu.edu/financial-services/sgu-som-scholarships.html

Items 3n to 3s - Professional training

No data were available from The University of the West Indies regarding these items. For the TAMCC the data available are detailed below.

Table 4.15: Core Dataset Items 3N to 3S. Professional training

Item	Description	TAMCC
3n	Ethnic/social sensitivity	Nursing course I and II include social/ethinic sensitivity training
3o	Shortages in faculty members	Need 4 clinical instructors in the department of nursing and 2 for pharmacy
3p	Curriculum matched to epidemiological profile	Yes
3q	Are there socio-cultural components	There are no socio-cultural components in the nursing curriculum
3r	Curriculum renewal process	There is no set curriculum renewal process
3s	Lines of communication between curriculum development and HRH needs	Yes

Items 3t, 3u, 3v, 3x - Professional development training

For doctors, clinical teaching takes place every Friday at the hospital in conjunction with Ross University. Nurses at the hospital have access to in-service training that covers both clinical skills and topics such as management and staff appraisals. Details of any other in-service training activities were unknown. Details of credits offered or required were not available.

Items 3W, 3Y - Fellowships

As with other EC countries, Grenada has a scholarship programme run by the government of Cuba. Additionally students have access to scholarships from the University of the West Indies, St George's University and universities in the US (Mid-Western State, City University, New York). Details of HRH related scholarship graduates (2009) are detailed in the table below.

Table 4.16: Number of students currently enrolled via scholarship schemes

Area of study	UWI	Cuba	MSU	CUNY	St. George's	Total
Medicine	1	11	1 [a]	0	6	19
Public Health	0	0	0	0	1	1
Nursing	2	0	0	0		2
Psychology	5	1	1	2		9
TOTAL	8	2	2	2	7	21

[a] Includes 1 Radiology specialty.

5. Saint Lucia - Results

5.1. Saint Lucia Notes

Saint Lucia is an island in the Eastern Caribbean with a total land area of about 620 km^2 (239 square miles). This land area places it 193rd in the world—roughly 3.5 times the size of Washington DC. It has no land boundaries and 158 km of coastline. It is comprised of 11 administrative quarters (17 electoral districts). The estimated population in 2009 was 160,276, the 187th most populous country in the world. With 298 people per km^2 (672 people per square mile), it is the 41st most densely populated nation in the world[12]. The working population (aged 15 and older in employment) was 62,111[13]. Like many Eastern Caribbean states, Saint Lucia does not classify its land usage as "urban" or "rural"—the exception is Castries, which can be divided into Metropolitan Castries (pop: 11,093), Castries City (pop: 28,570), and Castries rural (pop: 23,698). The more densely populated districts are Castries (1,998 people per square mile) and Vieux Fort (966 people per square mile). The population densities of the remaining 9 quarters range from 376 (Soufriere) to 572 (Micoud).The United Nations Human Development Index[14] (a standard measure of human development, focusing on education, healthcare, income and employment) placed Saint Lucia 72nd in a league table of nations. At the 2001 census the Saint Lucia population was primarily of African descent (82.5%) with 11.9% mixed race. Stratifications by race or ethnicity were not applied in this report.

Figure 5.1: The 11 quarters of St. Lucia

12. United Nations world population prospects 2005 (http://esa.un.org/unpp, accessed March 01, 2009).
13. Saint Lucia 2001 population and housing census. The Saint Lucia Government Statistics Department.
14. United Nations human development Indices (http://hdr.undp.org/en/media/HDI_2008_EN_Tables.pdf accessed March 23, 2009).

5.2. Human Resources in Health (HRH) Quantitative Information

5.2.1. Public-sector HRH workers

Public-sector HRH workers by facility type

St Lucia has a public-sector health service that is free to all residents at the point of care. The healthcare workers that make this possible are well documented and maintained via the Government payroll system, using a well known off-the-shelf database—Smartstream. There were 361 job categories listed in this personnel database. These categories define pay-scales and are therefore important for local financial and administrative use. For national comparisons, these jobs have been grouped into 11 occupational categories defined at the inception of this HRH data summary project.[15]

Table 5.1: Number of HRH workers in each public-sector facility group

Public sector facility type	Number of workers (%)
Victoria Hospital	599 (40.3)
Ministry of Health	363 (24.4)
Primary Health Care Services [a]	225 (15.2)
St.Jude Hospital [b]	128 (8.6)
Golden Hope Psychiatric Hospital	89 (6.0)
Soufrière Hospital	24 (1.6)
Dennery Hospital	23 (1.5)
Senior Citizen's Home – Soufriere	18 (1.2)
Turning Point Rehabilitation Unit	16 (1.1)
TOTAL workers	1385.1

[a] There are 35 health centres in 8 health regions, along with a single polyclinic located in the northern administrative quarter of Gros Islet.

[b] The number of HRH workers at St. Jude Hospital only includes selected HRH occupational categories (doctors, nurses, dentists, pharmacists, rehabilitation workers, and technologists). Data for other occupational categories (in particular – other professional/admin staff) were not provided.

In Saint Lucia there are 35 regional health centres located in 8 health regions[16]. A single polyclinic serves the northern administrative quarter of Gros Islet. There are two district hospi-

15. The 12 PAHO occupation categories are: Medical doctors, Nurses and midwives, Dentists and allied trades, Pharmacists and allied trades, Social workers, Rehabilitation workers, Laboratory Technologists, Public health practitioners, Nutritionists, Mental-health practitioners, Other health workers.

16. The 35 health centres are located in 8 health regions as follows (source St. Lucia Government Statistics Department, 2002). REGION 1: Grand Riviere, Gros Islet, Monchy. REGION 2: Babonneau, Fond Assau. REGION 3: Dennery, La Ressource, Richfond. REGION 4: Desruisseaux, Micoud, Mon Repos, Ti Rocher (Micoud). REGION 5: Belle Vue, Grace, Laborie, Saltibus, Vieux Fort, St.Jude. REGION 6: Canaries, Delcer, Etangs, Fond St Jacques, La Fargue, Mongouge, Soufriere. REGION 7: Anse La Raye, Jacmel, La Croix Maingot, Vanard. REGION 8: Bexon, Castries, Ciceron, Entrepot, La Clery, Marchand, Ti Rocher (Castries).

tals (Dennery Hospital and Soufrière Hospital), two general hospitals (Victoria Hospital and St. Jude Hospital) and one specialist psychiatric facility (Golden Hope Hospital).

Information on the number of public-sector HRH workers by facility is presented in Table 5.1. Victoria Hospital is the main tertiary care facility with 599 staff or 40.3% of the entire public-sector HRH workforce. The smaller general hospital (St. Jude) does not report its number of ancillary staff. Comparing the number of doctors and nurses at the two hospitals (St. Jude, n=103. Victoria, n=253)—by this criterion St. Jude is less than half the size of Saint Lucia's national hospital. Together, the two general hospitals report 356 medical and nursing staff, or about three-quarters (77.6%) of the number of doctors and nurses nationally.

"Three quarters of all doctors and nurses are employed at the two general hospitals in Saint Lucia"

District hospitals, polyclinic, and health centres together employ another 272 staff or 18.3% of the public-sector HRH workforce. There are 70 doctors and nurses employed at these facilities (15.3% of the all doctors and nurses nationally).

Data are available on the distribution of nurses working in health centres the 8 health regions and are summarised in Table 5.2. There are 28 nurses working full time in these regions: 5 public-health nursing supervisors, 6 family nurse practitioners, 13 community health nurses, 3 staff nurses, and 1 nursing assistant. There are a further 12 nurses working part-time: 8 community health nurses, and 4 staff nurses.

Table 5.2: Number of nurses working in health centres across eight health regions

Health region	Number of nurses (full-time/sessional) [a]
1	4 / 0
2	3 / 1
3	2 / 1
4	3 / 3
5	5 / 2
6	2 / 1
7	2 / 0
8	7 / 14
Total nurses	28 / 12

[a] Source: Community Health Nursing Service/MoH Focal Point: number of health region nurses not the same as total from the Ministry of Finance payroll system (see Table 5.7). Possibly due to changes in sessional staff.

Public-Sector HRH Workers by Major Occupational Category

Saint Lucia has 1,485 public-sector healthcare workers, and the numbers, stratified by occupational category, age and gender are presented in Appendix Two. These numbers are presented by occupational category in Table 5.3. Clinical doctors represented 8.8% of the total public sector HRH workforce, nurses, midwives and nursing assistants represented 25%, and all health management and support workers represented 42.3%. This proportion of manage-

ment and support workers is above the world average of 33%, reported by the World Health Organization in 2006, but is in line with the 43% average for the region of the Americas (see Table 5.3).

> "There are 7.5 doctors, 19.0 nurses, and 2.4 nursing assistants for every 10,000 people in Saint Lucia"

In Table 5.3 to Table 5.7 these HRH counts have been used with population data from the Saint Lucia 2001 census to present two key summary measures: HR worker density per 10,000 population and the number of people in Saint Lucia per HRH worker. In the public sector, there are 7.5 medical practitioners per 10,000 population (or 1 doctor for every 1,331 Saint Lucians). With 329 nurses and midwives in the public-health system (a density of 19.0 per 10,000) there is one nurse for every 526 Saint Lucians and just over 2.5 nurses for each doctor.

In addition to nursing staff there are also nursing assistants who help individuals with activities of daily living and bedside care under the supervision of fully-qualified nursing staff. With 42 nursing assistants in the public healthcare system (a density of 2.4 per 10,000) there is one nursing assistant for every 4,120 Saint Lucians. A fourth major category—other health workers—includes the many health managers and support workers involved in maintaining healthcare and healthcare facilities; there are 36.4 other health workers per 10,000 population.

Table 5.3: Public-sector HRH workers per 10,000 population by occupational categories

Occupation	Number of workers (%)	Density per 10,000 population (95% CI)	Population per worker
Medical doctors	130 (8.8)	7.51 (6.28 – 8.92)	1,331
Nurses and midwives [a]	329 (22.2)	19.01 (17.01 – 21.18)	526
Nursing assistants [b]	42 (2.8)	2.43 (1.75 – 3.28)	4,120
Dentists and allied	27 (1.8)	1.56 (1.03 – 2.27)	6,409
Pharmacists and allied	23 (1.5)	1.33 (0.84 – 1.99)	7,524
Social workers	35 (2.4)	2.02 (1.41 – 2.81)	4,944
Rehabilitation workers	16 (1.1)	0.92 (0.53 – 1.50)	10,816
Technologists	76 (5.1)	4.39 (3.36 – 5.50)	2,277
Public health practitioners	165 (11.1)	9.53 (8.14 – 11.11)	1,049
Nutritionists	7 (0.5)	0.40 (0.16 – 0.83)	24,721
Mental-health practitioners	6 (0.4)	0.35 (0.13 – 0.75)	28,842
Other health workers	629 (42.3)	36.35 (33.56 – 39.30)	275
ALL health workers	1385 (100)	85.8 (81.5 – 90.3)	116

[a] Nurses and midwives have the same occupational groupings in the Government payroll system.

[b] Assistant nurses are registered HRH-staff who assist individuals with healthcare needs

Table 5.4: Public-sector HRH workers
per 10,000 population by major occupational groupings

Occupation	Number of workers	Density per 10,000 pop. (95% CI)	Population per worker
Doctors, nurses, midwives	459	26.5 (24.2 – 29.1)	377
Doctors, nurses, midwives, nursing assistants	501	29.0 (26.5 – 31.6)	345
ALL health care providers [a]	856	49.5 (46.2 – 52.9)	202
All health workers [b]	1485	85.8 (81.5 – 90.3)	116

[a] All health care providers include the following occupational categories: doctors, nurses and midwives, nursing assistants, dentists, pharmacists, social workers, rehabilitation workers, technologists, public health practitioners, nutritionists, and mental health practitioners.

[b] All health workers includes all health care providers AND additionally includes health management and support workers.

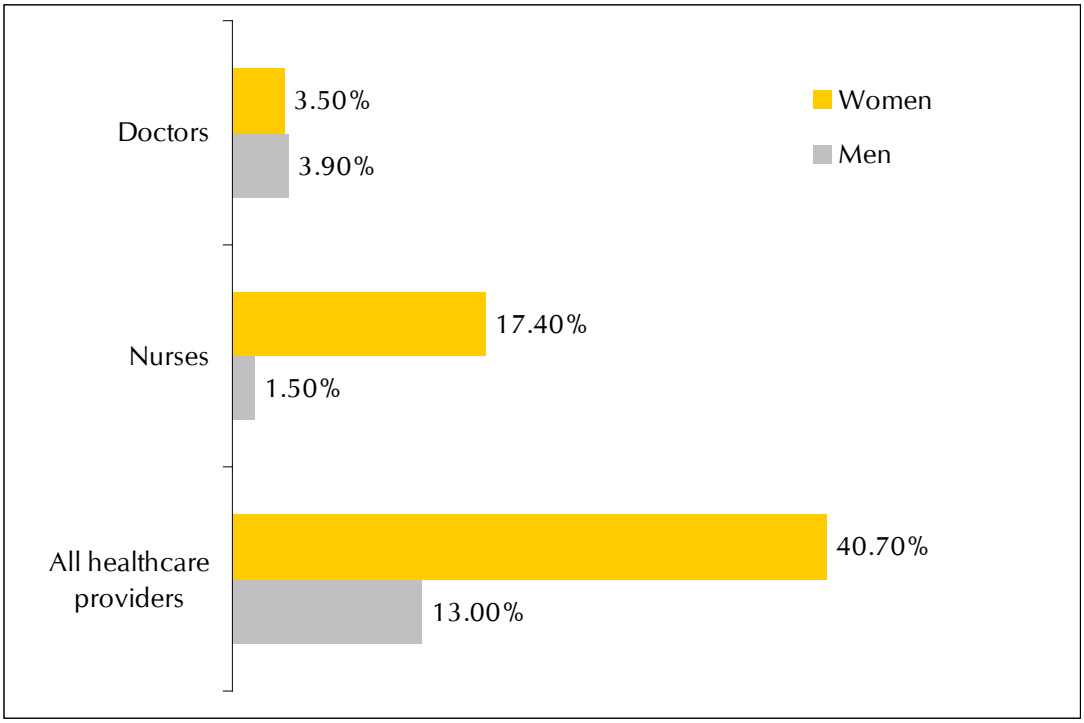
Table 5.5 and Figure 5.2 highlight many of the usual gender ratios in healthcare. There are broadly equivalent numbers of male and female medical practitioners (density - women: 2.72 per 10,000; men: 3.06 per 10,000). In all other occupation categories (except public-health) the number of women exceeds the number of men. This gender gap is most apparent for nursing staff (density - women: 13.57 per 10,000; men: 1.15 per 10,000) and is the main contributor to an overall ratio of more than 2 women in healthcare for every man (overall density - women: 54.84 per 1,000; men: 23.11 per 1,000).

Table 5.5: Public-sector HRH workers
per 10,000 population by major occupational category and gender [a]

Occupation	Women		Men	
	Number (%)	Density per 10,000	Number (%)	Density per 10,000
Medical doctors	47 (3.5)	2.72	53 (3.9)	3.06
Nurses and midwives	235 (17.4)	13.57	20 (1.5)	1.15
Nursing assistants	30 (2.2)	1.73	11 (0.8)	0.64
Dentists and allied	21 (1.6)	1.21	5 (0.4)	0.28
Pharmacists and allied	14 (1.0)	0.81	6 (0.4)	0.35
Social workers	33 (2.4)	1.91	2 (0.1)	0.12
Rehabilitation workers	10 (0.7)	0.58	2 (0.1)	0.12
Technologists	37 (2.7)	2.14	23 (1.7)	1.33
Public health practitioners	111 (8.2)	0.61	52 (3.9)	3.00
Nutritionists	7 (0.5)	0.40	0 (-)	-
Mental-health practitioners	4 (0.3)	0.23	2 (0.1)	0.12
Other health workers	400 (29.7)	23.11	224 (16.6)	12.94
Doctors, nurses, midwives	282	16.30	73	4.22
Doctors, nurses, midwives, nursing assistants	312	18.03	84	4.85
ALL health care providers	549	31.72	176	10.17
All health workers	949	54.84	400	23.11

[a] The gender of 128 HRH workers at St. Jude Hospital is unknown.

Figure 5.2: The percentage of female and male HRH workers who are doctors, nurses, or any type of healthcare provider



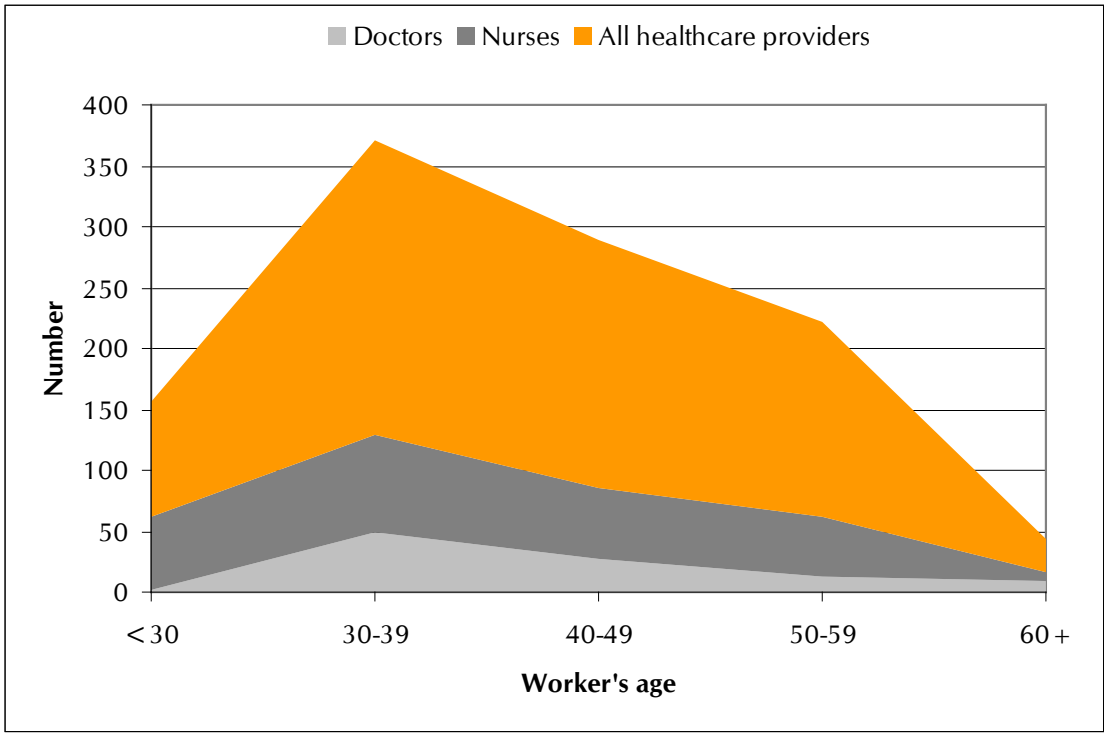
HRH worker densities by broad age categories are presented in Table 5.6 and Figure 5.3. The overall number of health workers increases initially, rising from 10.5 per 10,000 among those younger than 30 to 22.6 per 10,000 in the 30 to 39 age group to 23.1 per 10,000 among those aged 40 to 49. The HRH workforce then decreases in the older groups: 17.1 per 10,000 in those aged 50 to 59 and 4.6 in those aged 60 and older. The official Saint Lucia retirement age of 65 dictates fewer workers in the oldest age group.

Table 5.6: Public-sector HRH workers by major occupational category and age [a]

Occupation	younger than 30		30 to 39		40 to 49		50 to 59		60 and older	
	Number	Density per 10,000	Number	Density per 10,000	Number	Density per 10,000	Number	Density per 10,000	Number	Density per 10,000
Medical doctors	1	0.06	49	2.83	27	1.56	13	0.75	10	0.58
Nurses and midwives	60	3.47	80	4.62	59	3.41	49	2.83	7	0.40
Nursing assistants	5	0.29	13	0.75	14	0.81	9	0.52	0	-
Dentists and allied	1	0.06	13	0.75	7	0.40	4	0.23	1	0.06
Pharmacists and allied	1	0.06	13	0.75	5	0.29	1	0.06	0	-
Social workers	1	0.06	9	0.52	16	0.92	9	0.52	0	-
Rehabilitation workers	1	0.06	2	0.12	5	0.29	4	0.23	0	-
Technologists	16	0.92	20	1.16	11	0.64	11	0.64	2	0.12
Public health practitioners	8	0.46	36	2.08	57	3.29	56	3.24	6	0.35
Nutritionists	0	-	2	0.12	1	0.06	4	0.23	0	-
Mental-health practitioners	1	0.06	4	0.23	1	0.06	0	-	0	-
Other health workers	87	5.03	150	8.67	197	11.38	137	7.92	53	3.06
Doctors, nurses, midwives	61	3.53	129	7.46	86	4.97	62	3.58	17	0.98
Doctors, nurses, midwives,										
nursing assistants	66	3.81	142	8.21	100	5.78	71	4.10	17	0.98
ALL health care providers	95	5.49	241	13.93	203	11.73	160	9.25	26	1.50
All health workers	182	10.52	391	22.60	400	23.12	297	17.16	79	4.57

[a] The age of 128 HRH workers at St. Jude Hospital is unknown.

Figure 5.3: The number of HRH workers who are doctors, nurses, or any type of healthcare provider, by age



Public-sector HRH workers and the Saint Lucia workforce

The number of HRH workers as a percentage of the current Saint Lucia workforce is presented by age and gender in Figure 5.4. These data broadly reflect the observations in the previous section. The healthcare workforce rises from 0.5% of the employed population among the youngest workers to 2.78% of the employed population aged 45-54, and decreases thereafter. This trend is similar in women and men. Overall, women in health care represent 2.9% of the female workforce and men in health care represent 1% of the male workforce.

Public-sector HRH workers: primary versus secondary and tertiary care

Health centres and district hospitals are located to service particular geographical populations (known as catchment areas). However, Saint Lucia is a small island, and residents are not tied to a single health centre for their primary health care needs. Consequently, health centre use may not be closely tied to area of residence. With this important caveat in mind, no attempt has been made to stratify health provision by geographical region. Instead, Table 5.7 presents health care workers in two broad service provision categories: primary care (including all health centres) and secondary/tertiary care (including district and general hospitals).

> "There is 1 doctor for every 5,243 people at the General hospitals, and 1 doctor for every 12,818 people in primary care"

Clinical doctors and nurses are mainly employed in three facility types, primary health care centres, 2 tertiary care referral hospitals, and 4 further district and specialist hospitals. HRH worker densities vary considerably between facility types, with the highest density at the general hospitals: there are 5.7 doctors and 15.6 nurses per 10,000 population at Victoria and St. Jude hospitals. At the health centres, there is less than 1 doctor for every 3 at the general hospitals (1.6 per 10,000 compared to 5.7 per 10,000), and there is 1 nurse for every 8 at the general hospitals (2.0 per 10,000 compared to 15.6 per 10,000).

Figure 5.4: Public-sector HRH workers as a percentage of the employed population of Saint Lucia aged 15 and over, by age and gender

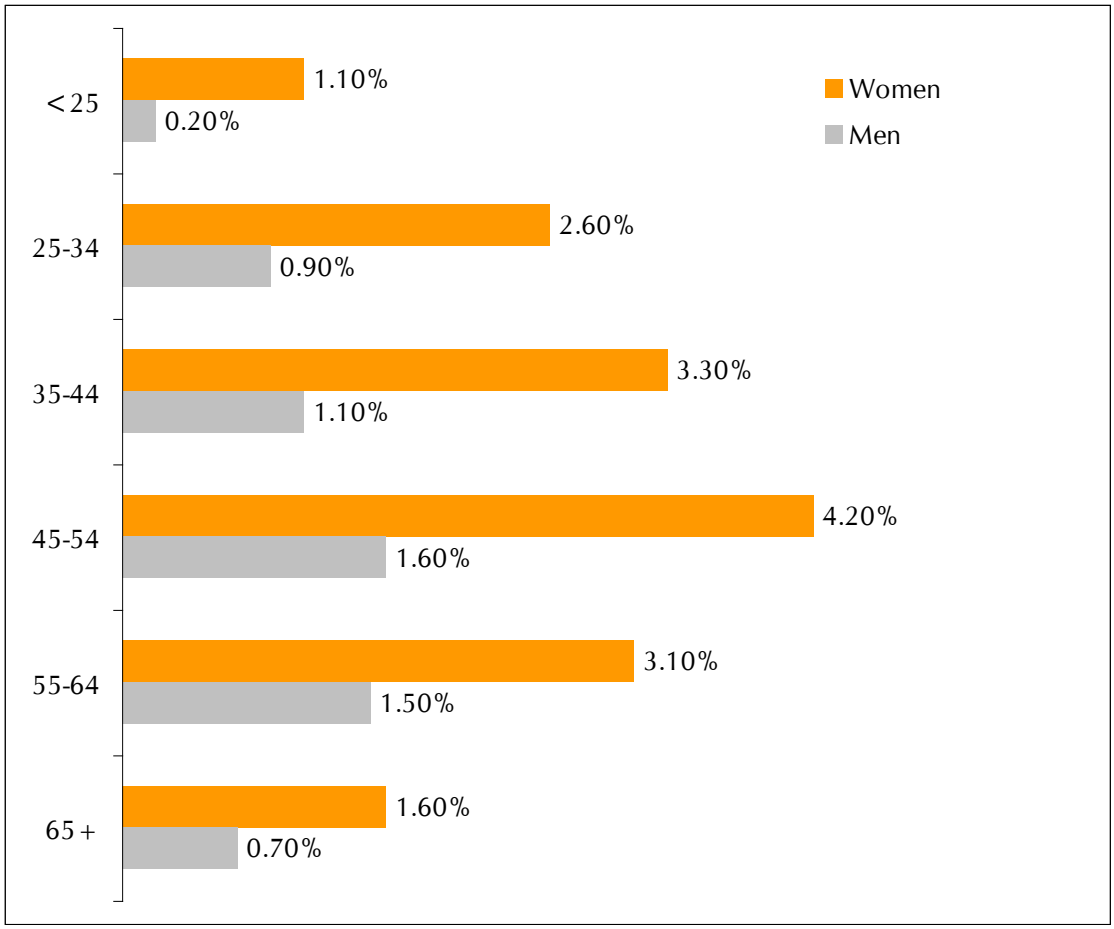


Table 5.7: HRH workers in primary and tertiary care

Health care facility	Number	Density per 10,000 population	Population per worker
Primary care: health centres			
Doctors	27	1.56	6,409
Nurses	34	1.97	5,090
Tertiary care: General Hospitals			
Doctors	99	5.72	1,748
Nurses	270	15.60	641
Secondary/Tertiary care: Other Hospitals			
Doctors	4	0.23	43,262
Nurses	67	3.87	2,583

Doctors in the public sector: specialist subgroups

Table 5.8: The number of full time clinical doctors at two general hospitals by specialty

Hospital department	Consultant	Registrar	SHO/HO [a]	Total
Accident & emergency	1	3 [b]	8	12
Radiology	1	0	0	1
Anaesthesia	3	0	1	4
ENT surgery	1	0	0	1
Renal dialysis	1	0	0	1
Cardiology	1	0	0	1
Medicine	1	1 [b]	3	5
Obstetrics & gynaecology	3	1 [b]	3	7
Ophthalmology	1	0	1	2
Paediatrics	2	1	2	5
Pathology	1	0	0	1
General surgery	3	0	3	6
Orthopaedic surgery	1	1	0	2
TOTAL	20	7	21	48

[b] SHO/HO = Senior House Officer / House Officer.

[a] Figure includes 1 approved, but unfunded Senior Registrar's post.

5.2.2. Private-sector HRH workers

Like many countries operating a social healthcare system, alternative private healthcare options exist in St Lucia. Minimal regulations and a lack of standardised data collection mean that information on healthcare professionals in the private sector is limited to estimates of professions for which registration is required to practice a trade. There are three registration councils, covering medical doctors (Medical Council of St Lucia) nurses and nursing assistants (the Nursing Council), pharmacists (the Pharmacy Council).

Table 5.9: HRH workers registered with appropriate registration councils[a] in Saint Lucia by occupational category

Occupation	Number registered	Number in public sector	Estimated part-time and private-sector workers
Medical doctors	135 [b]	69 [c]	80 [d]
Dentists	16 [a]	7	19 [d]
All nurses/midwives [e]	316 / 38	285	-
Pharmacists	74	21	23 [d, f]

[a] Data regarding registered dentists were obtained from St Lucia Medical and Dental Association.

[b] This figure is from The Gazette.

[c] From Budget estimates.

[d] From Yellow Pages.

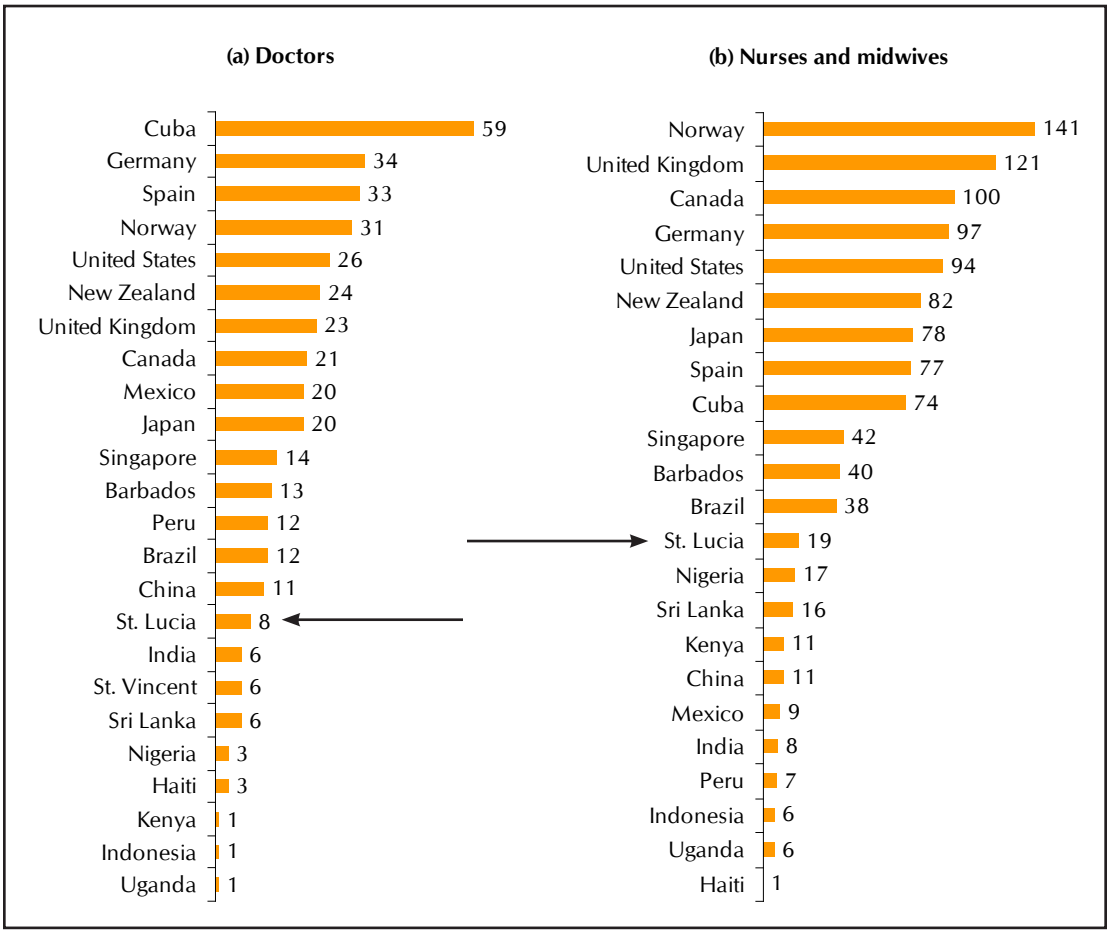
[e] Does not include nursing assistants.

[f] Estimated number from Pharmacists Association is 39.

5.2.3. Comparing Saint Lucia HRH workers with international estimates

The World Health Organization's 2006 annual report focused on human resources for health, providing health workforce estimates worldwide. In Figure 5.5 the density of doctors and nurses per 10,000 population is presented for Saint Lucia (using data from this report), and a further sample of 22 countries (using data from the WHO annual report).

Figure 5.5: The number of doctors per 10,000 population
for Saint Lucia and a sample of 22 countries worldwide



5.3. Human Resources in Health (HRH) Descriptive Information

5.3.1. Regulatory framework and management practices

For the public sector much of the regulatory tools concerning health employment are described in the legislation relating to public service and employment. Available descriptive data were limited Table 5.10 details which legislation is associated with the various items of the core data set (ITEMS 3A to 3K).

Table 5.10: Descriptive data required concerning public sector management practices of human resources in health, and categories of potential information sources

Item	Descriptive data	Source	Reference	Comments
2a	Regulatory tools concerning University training programmes, accreditation, approval and financing.	University of the West Indies (UWI)	N/A	UWI's MBBS has been accredited by the Caribbean Accreditation Authority for Education in Medicine and other Health Professionals (CAAM-HP). CAAM-HP are also responsible for the accreditation of dental schools.
2b	Main regulatory tools for health employment: career paths selection systems, performance management, incentives and evaluation.	St Lucia law	Staff Orders for public service	
2c	Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)	http://www.stlucianursing.org/about	The Registration of Medical Practitioners Act 1967. St Lucia Pharmacy Act. Registration of Nurses and Midwives Ordinance No.12 of 1966.	Pharmacists and nurses must register (and pay fees) with the appropriate registration council on an annual basis. A similar process is in development for doctors.
2d	Regulatory and Licensing requirements for foreign workers			Unavailable
2e	Main regulatory framework regarding unionization and collective actions	St Lucia Law	Trade Union Act	
2f	Contracting models (Is the permanent tenure in the public service vs flexible, short term contract	St Lucia law	Staff Orders for public service	
2g	Selection process (Is there any selection process established or is the discretional appointment the norm?)			Unavailable

Continues on next page...

...continuation of Table 5.10.

Item	Descriptive data	Source	Reference	Comments
2h	Salary and payment scales and relative values (ii)Is the salary scale in health sector competitive with employment in other sectors? (i)Are there important differences between the medical and non-medical workers?			Unavailable
2i	Performance measurement: Is there any formal process of evaluation?			Yes - not consistently applied
2j	CSME regulatory and accreditation requirements for free circulation and contracting of personnel			Unknown
2k	Any data on migration			Unknown

5.4. Education System Related to HRH Quantitative Information

5.4.1. The training environment for future Lucian healthcare workers

Residents of Saint Lucia have access to the following institutions for training:

- The University of the West Indies
- The Sir Arthur Lewis Community College
- Spartan Health Sciences University - School of Medicine
- Destiny University- School of Medicine and Health Sciences
- International American University - College of Medicine.
- Cuba

The public university: The University of the West Indies

The University of the West Indies (UWI) is the main tertiary education centre for the English speaking Caribbean. UWI operates five campuses: three main campuses in Barbados (Cave Hill), Jamaica (Mona), and Trinidad & Tobago (St Augustine), one further campus in Bahamas, and the Open Campus dedicated to distance education. The UWI courses are campus-specific; any one health-related training course rarely takes place on all three main campuses. The UWI admissions process is organised at the campus-level, and so information on applicants, admissions, and graduates requires access to three administrative centres. At the completion of this report, two centres had provided information (Barbados and Jamaica), and these data are presented in Table 5.11 to Table 5.15.

Sir Arthur Lewis Community College

The Sir Arthur Lewis Community College was established under Act No. 8 of 1985. It teaches a range of subjects that can be divided into the following areas: agriculture, art, science and general studies, health science, teacher education and educational administration and technical education and management studies. Most of the quantitative data were unavailable, but figures for graduates were available.

The off-shore private universities

There are three private “offshore” medical universities.

- Spartan Health Sciences University - School of Medicine (SHS)
- Destiny University - School of Medicine and Health Sciences (DTY)
- International American University - College of Medicine (IAU)

Quantitative data were unavailable for these institutions. Descriptions of the courses on offer are presented in Table 5.16. One further private college (Monroe College) offers a BS in Public Health (see http://www.monroecollege.edu).

The number of applications and entrants to professional training programs

The number of applicants and entrants to The University of the West Indies for the academic years 2006-7 and 2007-8 is presented in Table 5.11. The majority of the equivalent data for courses at the Sir Arthur Lewis Community College (SALCC) were unavailable (only details regarding number of graduates was obtained).

Table 5.11: The number of applicants and the percentage admitted for nine course groups for ALL applicants, and for Saint Lucian citizens and residents (LU)

Training	2006-2007				2007-2008			
	Apply		Accept		Apply		Accept	
	ALL	LU	ALL (%)	LU	ALL	LU	ALL (%)	LU
Medical undergraduate	805	3	186 (23.1)	1	1,089	16	232 (21.3)	10
Medical postgraduate	110	1	55 (50.0)	0	131	1	48 (36.6)	0
Nursing undergraduate	716	25	385 (53.8)	25	1,034	40	532 (51.4)	26
Nursing postgraduate	58	6	28 (48.3)	4	74	6	46 (62.1)	3
Public Health	78	1	40 (51.3)	1	94	2	50 (53.1)	2
Physical Therapy	83	0	20 (24.1)	0	177	0	51 (28.8)	0
Nutrition	27	0	11 (40.7)	0	35	0	22 (62.9)	0
Counselling	3	0	3 (100)	1	6	0	3 (50)	0
Radiography	45	1	31 (68.9)	0	205	1	27 (13.2)	0
TOTAL	1925	37	759 (39.4)	32	2,845	66	1,011 (35.5)	41

Preliminary data on the number of graduates are available from both the Jamaican and Barbados campuses of the University of the West Indies, and these information are reported in Table 5.12. Saint Lucians taking courses in medicine, nursing, pharmacy, and dentistry can also train in Trinidad, but this data has not been collected. Information regarding graduates at SALCC for 2009: Nursing, 33; Midwifery, 16 and Health aides, 48.

Table 5.12: The number of graduates from
The University of the West Indies (Jamaica and Barbados campuses)
from nine course groups for ALL applicants, and for Saint Lucian citizens and residents (LU)

Training	2003		2004		2005		2006	
	All	LU	All	LU	All	LU	All	LU
Medical undergraduate	96	0	90	0	76	0	127	10
Medical postgraduate	33	0	30	0	33	1	32	2
Nursing undergraduate	0	0	20	0	42	0	237	0
Nursing postgraduate	30	0	38	0	20	0	29	0
Public Health	16	0	33	0	33	0	21	0
Physical Therapy	11	0	7	0	12	0	16	0
Nutrition	2	0	10	0	9	0	1	0
Counselling	0	0	61	0	12	0	74	0
Radiography	0	0	0	0	0	0	0	0
TOTAL	188	0	289	0	237	1	537	2

5.5. Education System Related to HRH Descriptive Information

Both the University of the West Indies and The Sir Arthur Lewis Community College are involved in the training of HRH in Saint Lucia. The Jamaican and Trinidadian campuses of the UWI train the majority of the professions associated with HRH, with the Cave Hill Campus involved in the training of social workers and psychologists.

Until 2008, Barbados has been responsible for training social workers and providing clinical training for the final two (clinical) years of the MBBS course. In September 2008 the University Medical School in Barbados was upgraded to a full faculty (The Faculty of Medical Sciences) and now offers a 5-year MBBS program.

The Sir Arthur Lewis Community College (SALCC) is funded and regulated by the government, descriptive data for SALCC are detailed in Table 5.14 and Table 5.15. The following detailed tables (Table 5.13 to Table 5.15) cover the descriptive data items in the 'education for HRH' section of the core dataset (see Appendix 1 for details of the core dataset).

Table 5.13: Core Dataset Item 3C. Number of HRH worker training degree courses offered by the University of the West Indies (and see Appendix 3)

Professional category	Faculty	Campus	Postgraduate	Degree	Certificate/ diploma
Medical doctors	Medical Sciences	Mona	29	1	
	Medical Sciences	Cavehill	6	1	
	Medical Sciences	St. Augustine	26	1	
	Grad School	Mona	1		
Nursing	Medical Sciences	Mona		4	2
	Medical Sciences	St. Augustine	6	1	
Dentistry	Medical Sciences	St. Augustine	6	1	
Pharmacy	Medical Sciences	St. Augustine	2	1	
Social work	Social Sciences	Mona		1	1
	Social Sciences	Cavehill	1	1	
	Social Sciences	St. Augustine	2	1	
Rehabilitation	Medical Sciences	Mona		1	1
Technologists	Medical Sciences	Mona		1	
Public health practitioners	Medical Sciences	Mona	5		
	Medical Sciences	Cavehill	2		
	Medical Sciences	St. Augustine	4		
	Humanities & Education	St. Augustine	1		
	Pure & Applied Sciences	Mona	2		
	Grad School	Mona	1		
Nutritionists	Medical Sciences	Mona	3		
	Science & Agriculture	St. Augustine		2	
	Grad School	Mona	1		
Mental Health	Social Sciences	Mona	2		1
	Social Sciences	Cavehill		1	
	Social Sciences	St. Augustine	5		1

Table 5.14: Core Dataset Item 3I. Entry requirements for each professional qualification

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Doctors	Medical Science	Mona, CH, StA	Medicine & surgery	MBBS	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required
Nurses...	Medical Science	Mona	Advanced nursing administration	Cert.	Unavailable
	Medical Science	Mona	Advanced nursing education	Cert.	Unavailable
	Medical Sciences	Mona	Generic nursing	BSc	5 CXC subjects or O-levels Applicants' academic qualifications must include the following subjects/ levels:English language, Mathematics, Physics or Statistics One subject from: Biology, Human & Social Biology, Integrated Science Two or more subjects from:: Agricultural Science, Geography, Caribbean History, a modern language, Social Studies, Religious Education, Food & Nutrition, Home Economics Management, Principles of Accounts, Principles of Business, Information Technology or Chemistry. No Applicant can have more than 2 subjects at CXC General 3 or at GCE level C or a combina¬tion of both.
	Medical Science	Mona	Nursing education	BSc	Unavailable
	Medical Science	Mona	Post registered nurse	BSc	Unavailable

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...continuation of Table 5.14.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
...Nurses...	Medical Science	Mona	Nursing administration	BSc	Unavailable
	Medical Science	StA	Nursing	BSc	Passes in at least five (5) subjects at CXC (CSEC) General Proficiency (Grades I or II and from 1998 Grade III) or GCE O-level or approved equivalents Passes in at least two (2) subjects at CXC (CAPE) or GCE A-level or approved equivalents OR Passes in four (4) GCE subjects or approved equivalents, of which at least three (3) must be at the A-level or equivalent
	SALCC		Applied nutrition and dietetics	Cert.	Passes in 4 subjects at CXC General Proficiency, grades 1, 2 and 3 (if sat before 1998), 1, 2, 3 and 4 (if sat from 1998); or GCE 'O' Level, grades A, B, C. The following subjects are compulsory: English Language, Mathematics and a science subject. A High School Diploma or equivalent with a 'B' average or a GPA of 2.00 and a 'B' average in English Language and Mathematics. At least 2 years practical experience or other qualification of special relevance to the course. This would include persons who have been trained as Nurses, Teachers, Public Health Inspec-tors, Health Educators and Agricultural Extension Officers. Other allied health workers involved in and aspects of food and nutrition programmes will be considered.
	SALCC		Health aide programme	Cert.	Literacy and Numerical Skills Medical Certificate of Fitness
	SALCC		Midwifery	Dip.	Academic: Successful completion of the General Nursing Programme from a recognized school of nursing, having completed the Regional Nursing Curriculum. Successful completion of all pre requisite for programme or other required courses. Other Qualifications: Possession of current license to practice as a registered nurse in St Lucia. A minimum of one-year current post basic experience in a general hospital setting (maternal and infant nursing experience preferred). Current CPR Certification Medical Certificate of Fitness

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...continuation of Table 5.14.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
...Nurses	SALCC		Nursing	AD	Academic: Five CXC Subjects grade I, II or III after June 1998 or grade I or II before June 1998 including three compulsory subjects: English, Mathematics, and One Science subject (Biology or Chemistry Preferred) GCE in any of the subjects at Grade A, B or C. GCE Human & Social Biology will be accepted. Or Pre-College remedial (preparatory or access) courses offered at SALCC. English, Mathematics, Biology and Chemistry PLUS one other CXC subject course (Social Science preferred). General: Interview and / or Assessment of Written Communication Skills Medical Certificate of Fitness Minimum age requirement: 18 years by August 31 of the year the applicant is admitted to the Nursing Programme. (This age requirement may be reduced to 17 years with the approval of the General Nursing Council for delivery of the alternate programme structure.) Cardio-pulmonary Resuscitation (CPR) Certification preferred (course offer at Red Cross) Two References: School Principal, Teachers, Employers or other relevant persons.
Dentistry	Medical Science	StA	Dental surgery	DDS	See MBBS.

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...continuation of Table 5.14.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Pharmacy	Medical Science	StA	Pharmacy	BSc	SCHEME A Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required SCHEME D Passes in both units of Chemistry, and one other from Biology, Zoology, Physics or Mathematics at CAPE or GCE A- Level equivalent Passes in CSEC (CXC) General Proficiency or GCE O-level Mathematics and Physics also required
Social workers	Social Science	Mona	Social work (special)	BSc	Passes in five (5) subjects including English Language at CSEC (CXC) General Proficiency, Grades I or II and from 1998 Grade III) /GCE O-level AND passes in at least two (2) subjects at GCE A-level OR other approved Associate degrees, Diplomas and Certificates, including the two-year certificate in Social work from the UWI
	Social Science	Cavehill	Social work (special)	BSc	
	Social Science	StA	Social work (special)	BSc	
Rehabilitation workers	Medical Science	Mona	Physical therapy	BSc	CXC General Proficiency Examination Five (5) subjects - Compulsory - English Language, Mathematics Caribbean Advanced Proficiency Examination (CAPE) / Other Requirements Any two 2-unit CAPE, or tow GCE Advanced Level passes from the following list of subjects: Physics, Chemistry, Mathematics, Biology
Technologists	Medical Science	Mona	Diagnostic imaging	BSc	Possess a minimum of six(6) CSEC CXC subjects, grades 1-3or equivalents in the following: English Language, Mathematics or Physics, Biology or Human Biology, one other science subject, and two other subjects.

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...continuation of Table 5.14.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Nutritionists	Science and Agriculture	StA	Human nutrition and dietetics (special)	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75
	Science and Agriculture	StA	Institutional and community nutrition	BSc	
Mental health	Social Science	Mona	Psychology	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75
	Social Science	Cavehill	Psychology (special)	BSc	
	Social Science	StA	Psychology	BSc	
Traditional/ alternative health practitioners					
Other relevant groups					

StA = St Augustine campus, Trinidad.

SALCC = Sir Arthur Lewis Community College.

Table 5.15: Core Dataset Items 3C (BCC only), 3H and 3K.
Duration of course and tuition costs for the University of the West Indies,
and the Sir Arthur Lewis Community College (SALCC)

Profession	Faculty	Campus	Course name	Degree	Duration	Tuition (XCS) (for nationals)
Doctors	Medical Science	Mona, Cavehill, StA	Medicine and surgery	MBBS	4/5	145,973 [a]
Nurses	Medical Science	Mona	Advanced nursing administration	Cert.	Unavailable	Unavailable
	Medical Science	Mona	Advanced nursing education	Cert.	Unavailable	Unavailable
	Medical Science	Mona	Generic nursing	BSc	3	Unavailable
	Medical Science	Mona	Nursing education	BSc	3	Unavailable
	Medical Science	Mona	Post registered nurse	BSc	3	Unavailable
	Medical Science	Mona	Nursing administration	BSc	3	Unavailable
	Medical Science	StA	Nursing	BSc	3	Unavailable
	SALCC		Applied nutrition and dietetics	Cert.	1	http://www.salcc.edu.lc/index.php?option=com_content&task=view&id=37&Itemid=73
	SALCC		Health aide programme	Cert.	1	
	SALCC		Nursing	AD	3	
	SALCC		Midwifery	Dip.	16-24 months	
Dentistry	Medical Science	StA	Dental surgery	DDS	4	Unavailable
Pharmacy	Medical Science	StA	Pharmacy	BSc	3	Unavailable
Social workers	Social Science	Mona, Cavehill, StA	Social work (special)	BSc	3	46,592 [b]
Rehabilitation workers	Medical Science	Mona	Physical therapy	BSc	3	Unavailable
Technologists	Medical Science	Mona	Diagnostic imaging	BSc	3	Unavailable
Nutritionists	Science and Agriculture	StA	Human nutrition and dietetics (special)	BSc	3	46,592 [b]
	Science and Agriculture	StA	Institutional and community nutrition	BSc	3	46,592 [b]

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...continuation of Table 5.15.

Profession	Faculty	Campus	Course name	Degree	Duration	Tuition (XCS) (for nationals)
Mental Health	Social Science	Mona	Psychology	BSc	3	46,592 [b]
	Social Science	Cavehill	Psychology (special)	BSc	3	46,592 [b]
	Social Science	StA	Psychology	BSc	3	46,592 [b]
Traditional/ Alternative health practitioners						
Other relevant groups						

[a] For those from contributing countries only up to 83842 XCDS may be paid by the national's government.

[b] For those from contributing countries only up to 45428 XCDS may be paid by the national's government.

StA = Saint Augustine campus, Trinidad.

SALCC = Sir Arthur Lewis Community College.

Items 3N to 3S - Professional training

No information were available regarding these descriptive items.

Items 3T, 3U, 3V, 3X - Professional development training

For nurses, doctors, pharmacists and dentists some continuing education is provided by the professional associations. At present it is not possible to estimate the number of hours or individuals taking part in in-service training. Data concerning CME credits required for registration was available for pharmacists (6 credits) and CME is mandatory for nursing registration renewal (number of credits not detailed). Data regarding credits offered were unavailable.

Items 3W, 3Y - Fellowships

Assistance with economic costs or student loans are offered to those studying in one of the priority areas:

Postgraduate

1. Health Promotion
2. Nursing (All aspects)
3. Mental Health
4. Public Health
5. Hospital Administration
6. Speech Pathology
7. Hospital Engineering
8. Health and Wellness
9. Bio Medical Engineering

Undergraduate

1. Health Promotion
2. Nursing
3. Mental Health
4. Public Health
5. Medical LaboratoryTechnology
6. Neonatology
7. Radiography
8. Health and Wellness
9. Health Services Administration

Diploma/Certificate

1. Nursing (All aspects)
2. Mental Health
3. Public Health
4. Medical LaboratoryTechnology
5. Radiography
6. Ultrasonography

In 2009 seventeen students were given assistance with fees for nursing courses at the Sir Arthur Lewis Community College. Full sponsorship is also provided by the Cuban government and administered by the Government Training Division. In 2009 there were four graduates from the Cuban programme with medical degrees and a further 18 enrolled in the Cuban programme (medicine) this year.

The off-shore universities

- Spartan Health Sciences University - School of Medicine (SHS)
- Destiny University - School of Medicine and Health Sciences (DTY)
- International American University - College of Medicine (IAU)

Table 5.16: Descriptive data for three offshore medical universities in Saint Lucia

Item No.	Item description	Institution	Reference
2a/3b	Regulatory tools / accreditation	SHS	http://www.spartanmed.org/mission.html#mission
		DTY	http://www.medstlucia.info/licensure.html
		IAU	http://www.iau.edu.lc/credentials.html
3h	Course duration	SHS	http://www.spartanmed.org/program.html
		DTY	http://www.medstlucia.info/curric.html
		IAU	Not found
3i	Entry criteria	SHS	http://www.spartanmed.org/shsucatalog2005-2008.pdf http://www.spartanmed.org/admission.html
		DTY	http://www.medstlucia.info/admissions.html
		IAU	http://www.iau.edu.lc/admissionrequirements.html
3k	Tuition cost	SHS	http://www.spartanmed.org/tuition.html
		DTY	http://www.medstlucia.info/tuition.html
		IAU	http://www.iau.edu.lc/financialinfo.html
3w	Scholarships	IAU	http://www.iau.edu.lc/scholarships.html

SHS = Spartan Health Sciences University - School of Medicine

DTY = Destiny University- School of Medicine and Health Sciences

IAU = International American University - College of Medicine

6. Saint Vincent and the Grenadines - Results

6.1. Saint Vincent and the Grenadines Notes

Saint Vincent and the Grenadines (SVG) are a group of 32 islands in the Eastern Caribbean with a total land area of about 389 square kilometres (150.3 square miles). The largest island is Saint Vincent, from which the Grenadines (including 7 inhabited islands: Bequia, Canouan, Mayreau, Union Island, Mustique, Palm Island and Petit Saint Vincent) extend south. It is comprised of 6 administrative parishes (13 census districts). It has a population density of 707 people per square mile (278 per square kilometre). The United Nations Human Development Index (a standard measure of human development, focusing on education, healthcare, income and employment) placed SVG 91st in a league table of nations. At the 2001 census SVG had a population of 106,253. Estimates suggest that Saint Vincent is experiencing a net population reduction. For the purposes of this report, the 2001 census population is taken as the current population estimate at the time of data collection (2008/2009). The working population (aged 15 and older in employment) was 34,521 (with a total workforce of 43,779) . The SVG statistical office does not have a definition for "urban" and "rural". The most densely populated districts are: Kingstown, Kingstown suburbs and Calliaqua. At the 2001 census the SVG population was primarily of African descent (66%) with 19% mixed race, 6% East Indian, 4% European, and 2% Amerindian. Data stratifications by race or ethnicity were not applied.

Figure 6.1: The five parishes of Saint Vincent
(the Grenadines are the sixth parish)

6.2. Human Resources in Health (HRH) Quantitative Information

6.2.1. Public-sector HRH workers

Public-sector HRH workers by facility type

Saint Vincent and the Grenadines has a public-sector health service that is free to all residents at the point of care. The healthcare workers that make this possible are documented and maintained via the Government payroll system, using a well known off-the-shelf database – Smartstream. For national comparisons, these jobs have been grouped into 11 occupational categories defined at the inception of this HRH data summary project.

Table 6.1: Number of HRH workers in each public-sector facility group

Public sector facility type	Number of workers (%)
Milton Cato Memorial Hospital (MCMH)	472 (51.1)
Community Health Service	156 (16.9)
Mental Health	66 (7.2)
Rural Hospitals + Health Centres [a]	65 (7.0)
Lewis Punnett Home	41 (4.4)
Health Administration [b]	33 (3.6)
Dental Services	21 (2.3)
Pharmaceutical Services	20 (2.2)
Environmental Management [c]	17 (1.8)
Nutrition [d]	14 (1.5)
Health Education	9 (1.0)
HIV / AIDS / STI prevention & control	7 (0.8)
Family Planning Unit	2 (0.2)
TOTAL workers	923 (100)

[a] There are 5 rural hospitals (Georgetown, Bequia, Chateaubelair, Union Island, Levi Latham) and 39 health centres/clinics in SVG (see Table 6.2)

[b] Comprises Health administration and medical stores.

[c] Comprises: Environmental Health Department, Environmental Services Unit, Vector Contol

[d] Comprises: Nutrition Unit and Nutrition Support Programme

Information on the number of public-sector HRH workers by facility is presented in Table 6.1. Milton Cato Memorial Hospital, the public-sector tertiary referral centre for the entire country, is the largest employer of healthcare workers, with 472 staff or 51.1% of the entire public-sector HRH workforce. There are 39 health centres/clinics and 5 rural hospitals, across 9 health districts, and together these facilities employ another 65 (7.0%) of the HRH workforce (Table 6.1).

Table 6.2: Number of nurses HRH workers by specialist health care facility

Health care facility	Number of nurses [a] (%)
Milton Cato Memorial Hospital	262 (55.2)
Community Health Service	101 (21.3)
Mental Health Centre	48 (10.1)
Lewis Punnett Home	32 (6.7)
Rural hospital and health centres	32 (6.7)
TOTAL nurses	376 (100)
Rural Hospitals	
Georgetown Hospital	7
Bequia Hospital	5
Chateaubelair Hospital	6
Union Island Hospital	5
Levi Latham Hospital	5
Rural Health Centres [b]	4
TOTAL rural nurses	32

[a] Nurses include fully trained nurses and midwives along with nursing assistants, nursing auxiliaries, and nursing aides.

[b] Rural health centre nurse total obtained by subtracting the number of nurses in each rural hospital (data source: Ministry of Health Emoluments Book) from the total number of "Rural health centre and hospital" nurses listed in the Ministry of Finance payroll system. The same information was not available for the other health professions.

Additional data are available for the distribution of nurses by facility type, and this distribution is presented in Table 6.2. The Milton Cato Memorial Hospital employs 55% of the entire nursing pool, with a further 21% employed by the community health service. A small permanent staff of 32 nurses are attached to the rural health facilities, and this staff is aided by rotational staff, including doctors, and other specialists from the community health service.

Public-sector HRH workers by occupational category

Saint Vincent has 923 public-sector healthcare workers, and the numbers, stratified by occupational category, age and gender are presented in Appendix Two. These numbers are presented by occupational category in Table 6.3. Clinical doctors represented 6.7% of the total public sector HRH workforce, nurses, midwives represented 29%, while the three categories of nursing assistants (assistants, auxiliaries, aides) together accounted for a further 23% of the workforce. All health management and support workers represented 24.3%. This proportion of management and support workers is well below above the world average of 33%, reported by the World Health Organization in 2006 (see Table 6.3).

In Table 6.3 to Table 6.6 these HRH counts have been used with population data from the Saint Vincent 2001 census to present two key summary measures: health-related worker density per 10,000 population and the number of people in Saint Vincent per HRH worker. In the public sector, there are 5.8 medical practitioners per 10,000 population (or 1 doctor for every 1,714 Vincentians). With 268 nurses and midwives in the public-health system (a density of 25.2 per 10,000) there is one nurse for every 396 Vincentian and roughly 4 nurses for each doctor. In Saint Vincent three further categories of nursing staff exist—known as the nursing assistant, the nursing auxiliary, and the nursing aide. The nursing assistant is a trained

profession that is required to register with nursing council in order to practice. Nursing auxiliaries are not trained and are not required to register with the nursing council, they assist with general ward activities e.g. taking samples to laboratory. The nursing aide is also not trained or registered, but assists individuals with activities of daily living, located at Mental Health Centre & Lewis Punnett Home). There are a total of 208 nursing assistants, nursing auxiliaries, and nursing aides in the Saint Vincent public sector health care system; a density of 19.6 per 10,000 or one for every 511 Vincentians. Stratifying these assistant nursing roles further, the density for each profession are: 12.0 for nursing assistants, 3.9 for nursing auxiliaries, and 3.8 for nursing aides. A fourth major category—other health workers—includes the many health managers and support workers involved in maintaining healthcare and healthcare facilities; there are 21.1 other health workers per 10,000 population.

> "There are 5.8 doctors, 25.2 nurses, and 19.6 nursing assistants, auxiliaries, or aides for every 10,000 people in Saint Vincent"

Table 6.3: Public-sector HRH workers per 10,000 population by occupational category

Occupation	Number of workers (%)	Density per 10,000 population (95% CI)	Population per worker
Medical doctors	62 (6.7)	5.84 (4.47 – 7.48)	1,714
Nurses and midwives [a]	268 (29.0)	25.22 (22.29 – 28.43)	396
Nursing assistant / auxiliary / aide [b]	208 (22.5)	19.58 (17.01 – 22.42)	511
nursing assistant	127 (13.8)	11.95 (9.96 – 14.22)	837
nursing auxiliary	41 (4.4)	3.86 (2.77 – 5.23)	2,592
nursing aide	40 (4.3)	3.76 (2.69 – 5.13)	2,656
Dentists and allied	21 (2.3)	1.98 (1.22 – 3.02)	5,060
Pharmacists and allied	23 (2.5)	2.16 (1.27 – 3.25)	4,620
Social workers	12 (1.3)	1.13 (0.58 – 1.97)	8,854
Rehabilitation workers	5 (0.5)	0.47 (0.15 – 1.10)	21,251
Technologists	24 (2.6)	2.26 (1.45 – 3.36)	4,427
Public health practitioners	67 (7.3)	6.31 (4.89 – 8.01)	1,586
Nutritionists	8 (0.9)	0.75 (0.33 – 1.48)	13,282
Mental-health practitioners	1 (0.1)	0.09 (0 – 0.52)	106,253
Other health workers	224 (24.3)	21.08 (18.41 – 24.03)	474
ALL health workers	923 (100)	86.87 (81.35 – 92.66)	115

[a] Nurses and midwives have the same occupational groupings in the Government payroll system.

[b] The nursing assistant is a trained profession that is required to register with nursing council in order to practice. Nursing auxiliaries are not trained and are not required to register with the nursing council, they assist with general ward activities. The nursing aide is also not trained or registered, but assists individuals with activities of daily living.

Table 6.4: Public-sector HRH workers per 10,000 population by major occupational groupings

Occupation	Number of workers	Density per 10,000 population (95% CI)	Population per worker
Doctors, nurses, midwives	330	31.1 (27.8 – 34.6)	322
Doctors, nurses, midwives, nursing assistants	538	50.6 (46.4 – 55.1)	198
ALL health care providers [a]	699	65.8 (61.0 – 70.8)	152
All health workers [b]	923	86.9 (81.4 – 92.7)	115

[a] All health care providers include the following occupational categories: doctors, nurses and midwives, nursing assistants, dentists, pharmacists, social workers, rehabilitation workers, technologists, public health practitioners, nutritionists, and mental health practitioners.

Table 6.5: Number of public-sector HRH workers per 10,000 population by major occupational category and gender

Occupation	Women (%)	Men (%)	Unknown gender (%)
Medical doctors	12 (19)	18 (29)	32 (52)
Nurses and midwives	137 (51)	10 (4)	121 (45)
Nursing assistant / auxiliary / aide	80 (38)	7 (3)	121 (58)
Dentists and allied	8 (38)	2 (10)	11 (52)
Pharmacists and allied	8 (35)	7 (30)	8 (35)
Social workers	2 (17)	1 (8)	9 (75)
Rehabilitation workers	3 (60)	1 (20)	1 (20)
Technologists	6 (25)	7 (29)	11 (46)
Public health practitioners	33 (49)	7 (10)	27 (40)
Nutritionists	6 (75)	1 (13)	1 (12)
Mental-health practitioners	0 (-)	0 (-)	1 (100)
Other health workers	51 (23)	25 (11)	148 (66)
Doctors, nurses, midwives	149 (45.2)	28 (8.5)	153 (46.4)
Doctors and all nurses	229 (42.6)	35 (6.5)	274 (50.9)
ALL health care providers	295 (42.2)	61 (8.7)	343 (49.1)
ALL health workers	346 (37.5)	86 (9.3)	491 (53.2)

[a] The gender of 649 (59.5%) of all HRH workers is not available from the Ministry of Finance personnel system.

The high percentage of personnel for whom gender is not recorded limits the usefulness of gender comparisons by occupational group. Nevertheless, among those personnel for whom gender is known, Table 6.5 highlights common gender ratios in healthcare. There are more male than female medical practitioners (women 12 or 19%, men 18 or 29%), and slightly more medical technologists (women 6 or 25%, men 7 or 29%). In all other occupation categories the number of women exceeds the number of men. This gender gap is most apparent for nurses and midwives (female 137 or 51%, men 10 or 4%) and is the main contributor to an overall ratio of 4 women in healthcare for every man (women 346 or 37.5%, men 86 or 9.3%).

Table 6.6: Number of public-sector HRH workers by major occupational category and age

Occupation	Younger than 30	30 to 39	40 to 49	50 to 59	60 and over	Age unknown
Medical doctors	6	8	8	6	2	32
Nurses and midwives	38	44	37	25	3	121
Nursing assistant / auxiliary / aide	0	0	30	55	2	121
Dentists and allied	0	3	3	4	0	11
Pharmacists and allied	2	4	5	3	1	8
Social workers	1	0	0	1	1	9
Rehabilitation workers	0	2	1	1	0	1
Technologists	0	5	4	3	1	11
Public health practitioners	2	4	10	24	0	27
Nutritionists	1	1	2	3	0	1
Mental-health practitioners	0	0	0	0	0	1
Other health workers	6	16	25	28	1	148
Doctors, nurses, midwives	44	52	45	31	5	153
Doctors and all nurses	44	52	75	86	7	274
ALL health care providers	50	71	100	125	10	343
ALL health workers	194	262	345	395	33	1261

Similar to information on worker gender, the high percentage of personnel for whom age is not recorded limits the usefulness of age comparisons by occupational group. Nevertheless, HRH worker numbers by broad age categories are presented in Table 6.6. The overall number of health workers increases with each age group: 56 among those younger than 30, 87 in the 30 to 39 age group, 125 among those aged 40 to 49, and 153 among those aged 50 to 59. The official Saint Vincent retirement age of 60 for women and 65 for men means that there are fewer workers in the oldest age group. This age distribution—shifted towards older workers—may well reflect personnel entering the healthcare workforce on completion of training. An alternative scenario—education attracting fewer trainees—is possible and requires the annual monitoring of HRH worker numbers. This monitoring would require an understanding of the employed population of Saint Vincent, and we examine HRH workers in the context of the Saint Vincent workforce in the next section.

Public-sector HRH workers and the Saint Vincent workforce

The population of Saint Vincent in 2001 was 106,253. The population aged 15 years and over was 73,768 and the estimated working population (those over 15 years of age and in employment) was 34,521. The number of employed public-sector HRH workers as a percentage of the employed population was therefore 2.7%. Age and gender stratified percentages are not provided due to the large levels of missing HRH-worker age and gender information.

Public-sector HRH workers: primary versus secondary and tertiary care

Rural hospitals and health centres/clinics are located to service particular geographical populations (known as health districts), with each health centre/clinic having the resources

for a catchment population of approximately 2900 individuals. However, Saint Vincent is a small island, and residents are not tied to a single health district for their primary healthcare. Consequently, health centre use may not be closely tied to area of residence. With this important caveat in mind, no attempt has been made to stratify health provision by geographical region. Instead, Table 6.7 presents health care workers in three broad service provision categories: primary and secondary care and tertiary care. Clinical doctors and nurses are mainly employed in three facility types, primary health care centres (primary care), a single national referral hospital (tertiary care), and other hospitals and care centres jointly classified as secondary/tertiary care. HRH worker densities vary considerably between facility types, with the highest density in tertiary care: there are 5.1 doctors and 24.7 nurses per 10,000 population at the Milton Cato Memorial Hospital. At the health centres, there is less than 1 doctor for every 7 at the memorial hospital (0.7 per 10,000 compared to 5.1 per 10,000), and there is 1 nurse for every 1.6 nurses (or 5 for every 8 nurses) at the memorial hospital (15.2 per 10,000 compared to 24.7 per 10,000).

> "There is 1 doctor for every 1,968 people at the MCMH, and 1 doctor for every 15,179 people in the health districts"

Table 6.7: HRH workers in primary, secondary, and tertiary care

Health care facility	Number	Density per 10,000 population	Population per worker
Primary care: health centres			
Doctors	7	0.66	15,179
Nurses	161	15.15	660
Tertiary care: MC Memorial Hospital			
Doctors	54	5.08	1,968
Nurses	262	24.66	406
Secondary/Tertiary care: Other hospitals			
Doctors	-	-	-
Nurses	52	4.89	2,043

Doctors in the public sector: specialist subgroups

Information from the Ministry of Finance payroll system (SmartStream) did not provide details of clinicians working in the various medical specialties in Saint Vincent and the Grenadines. However, the Saint Vincent Medical Association membership list allows the identification of the specialities available within The Milton Cato Memorial Hospital.

Table 6.8: Number of senior clinical doctors at MCHC
by employment type (full time, or vacant post) and by specialty

Department	Full-time	Vacant [a]
Anaesthesia	1	
Internal Medicine	2	
Obstetrics & gynaecology	2	
Paediatrics	2	
Pathology	1	
Radiology	1	
General surgery	2	
Orthopaedic surgery	1	
Urology	1	
TOTAL	13	3

[a] Only the total number of consultant vacancies is known.

6.2.2. Private-sector HRH workers

Like many countries operating a social healthcare system, alternative private healthcare options exist in SVG. Minimal regulations and a lack of standardised data collection mean that information on healthcare professionals in the private sector is limited to estimates of professions for which registration is required to practice a trade. There are three registration councils, the General Medical Council (covering medical doctors, dentists and vets), the General Nursing Council (nurses and nursing assistants) and the Pharmacy Council (pharmacists). However, in SVG the General Medical Council does not require annual renewal of registration so there is no gazetted list of doctors or registration list that will enable identification of those in the private sector. However, the Pharmacy and Nursing Councils both require annual payment of fees for continued registration. Consequently, there are lists of registered pharmacists and nurses are available. There is one private hospital, but no data were available. The table below summarises data obtained from registration councils and the professional associations.

Table 6.9: HRH workers registered with
three registration councils[a] in SVG by occupational category

Occupation	Number in public sector	Number registered	Active members [b]	Estimated full/part-time private-sector workers
Medical doctors		109 [b]	95 [c]	42 [d]
Dentists		25 [b]	25	13
Nurses / nursing assistants		1,104 / 273	558 / 210	Unknown
Pharmacists	22	49 [e]	42	20

[a] The General Medical Council (GMC), the General Nursing Council, the Pharmacy Council, and the Paramedical Council.

[b] Number obtained from SVG Medical Association.

[c] Six are working abroad.

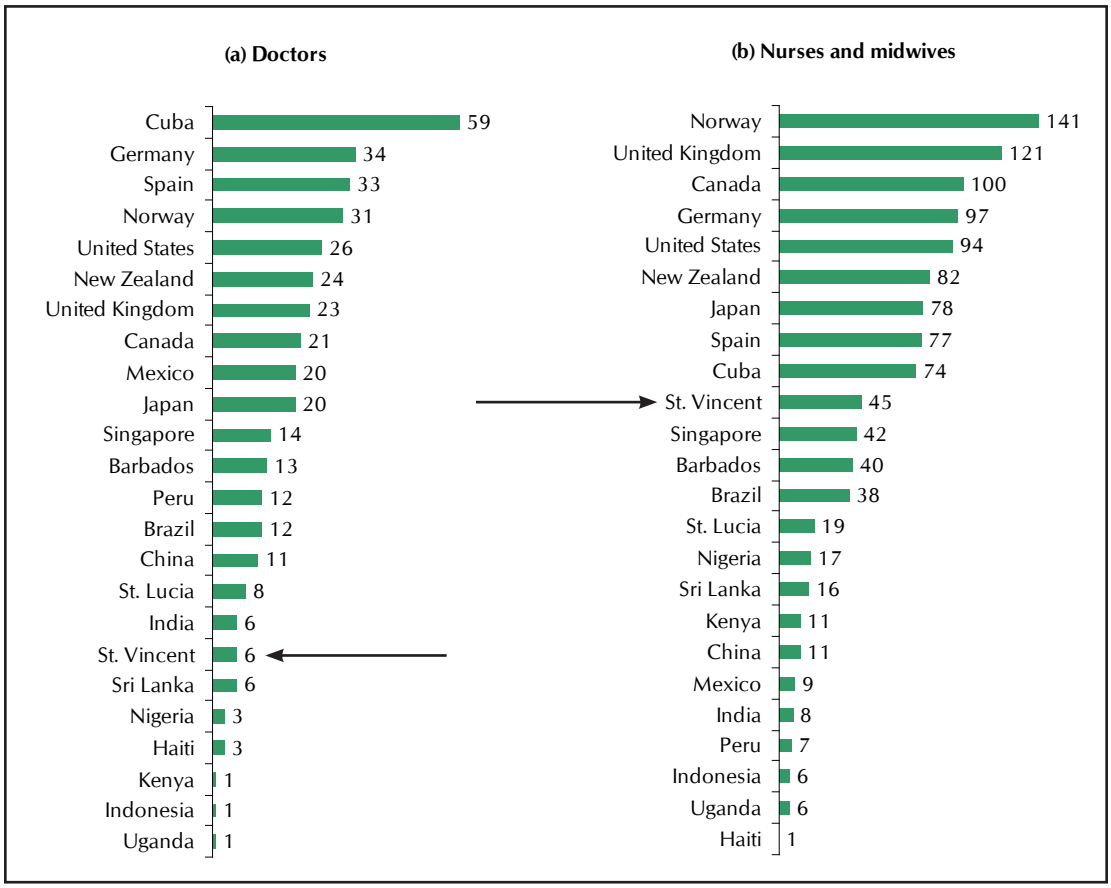
[e] Seven are students.

[d] From Yellow Pages - this number tallies with the numbers obtained in 2002 from the treasury dept.

6.2.3. Comparing SVG HRH workers with international estimates

The World Health Organization's 2006 annual report[17] focused on human resources for health, providing health workforce estimates worldwide. In Figure 6.2 the density of doctors and nurses per 10,000 population is presented for Saint Vincent (using data from this report[18]), and a further sample of 22 countries (using data from both the WHO 2006 annual report and from this PAHO project).

Figure 6.2: The number of doctors per 10,000 population for SVG and a sample of 21 countries worldwide



6.3. Human Resources in Health (HRH) Descriptive Information

6.3.1. Regulatory framework and management practices

For the public sector much of the regulatory tools concerning health employment are described in the Public Service Commission Act, General Orders and associated employment acts and implemented by the Public Service Commission. Legislation is also in place for professional registration and unionisation. Table 6.10 details which legislation is associated with the various items of the core data set (ITEMS 3A to 3K).

17. World Health Organization. The World Health Report 2006: working together for health. WHO Press, Geneva.
18. Saint Vincent data uses public-sector estimates only.

Table 6.10: Descriptive data required concerning public sector management practices of human resources in health, and categories of potential information sources

Item	Descriptive data	Source	Reference	Comments
2A	Regulatory tools concerning University training programmes, accreditation, approval and financing.	University of the West Indies (UWI)		UWI's MBBS has been accredited by the Caribbean Accreditation Authority for Education in Medicine and other Health Professionals (CAAM-HP). CAAM-HP are also responsible for the accreditation of dental schools.
		Trinity School of Medicine	N/A http://www. trinityschoolofmedicine. org/admissions/technical-standards. html	
2B	Main regulatory tools for health employment: career paths selection systems, performance management, incentives and evaluation.	Public Service Commission	General Orders and Public Service Commission Act	
2C	Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)	St Vincent & the Grenadines Law	Medical Registration Act (Doctors, dentists, + other Professions Allied to Medicine) General Nursing Registration Act (Nurses + nursing assistants) Pharmacy Act (Pharmacists)	Nurses and pharmacists must register (and pay fees) with the appropriate registration council. Under the current Medical Registration Act doctors and the other professions covered by the medical registration act do not pay annual fees and there is no readily accessible data concerning the registration status of these professionals. However, this act is currently being amended (Health Professions Registration Bill) and will require annual fees and continuing education criteria.
2D	Regulatory and Licensing requirements for foreign workers	Registration councils CARICOM	As above + Employment of Foreign Nationals and Commonwealth Citizens Regulations.	Non-nationals follow the same criteria as nationals for registration. Fees are the same for both groups. The following certificates need to be presented for registration: initial + current registration, qualification as well as passport and verification of previous registration.

Continues on next page...

...continuation of Table 6.10.

Item	Descriptive data	Source	Reference	Comments
2E	Main regulatory framework regarding unionization and collective actions	St Vincent & the Grenadines Law	Trade Unions Act Trade Disputes Act	
2F	Contracting models (Is the permanent tenure in the public service vs flexible, short term contract	Ministry of Health	N/A	Positions are usually contracted short-term (2-years), particularly doctors. After 3 consecutive, 2-year contracts, (an accumulation of 6 years) the individual can have permanent employment if he/she so desires.
2G	Selection process (Is there any selection process established or is the discretional appointment the norm?)	Public Services Commission		Service Commission Board advertise position and invite applications to be submitted. In some cases interviews are also held. Sometimes recruitment is done via recommendation (from other ministries), but these still require Services Commission approval.
2H	Salary and payment scales and relative values (i)Are there important differences between the medical and non-medical workers? (ii)Is the salary scale in health sector competitive with employment in other sectors?	Public Services Commission		Salary scales are not based solely on performance, longevity of service or education. Initial placement within a salary scale is based on education and experience. Salary is incremental yearly and each scale as a ceiling. (i) Benchmarks are used against other technocrats in other sectors. Technical workers may sometimes have an advantage over non health workers. (ii) Yes
2I	Performance measurement: Is there any formal process of evaluation?	Public Services Commission		Yes, but it is not always employed. However, performance evaluation must take place for a promotion to be approved.
2J	CSME regulatory and accreditation requirements for free circulation and contracting of personnel			Nurses must have a CSME certificate to allow work permit exemption in other CARICOM countries.
2K	Any data on migration	Pharmacy council		Pharmacists: 2/year

6.4. Education System Related to HRH Quantitative Information

6.4.1. The training environment for future Vincentian healthcare workers

Residents of St Vincent and the Grenadines, have access to range of institutions for training:

- The University of the West Indies
- The SVG Community College
- Trinity School of Medicine (off-shore university)
- International training opportunities (Cuba, Venezuela, Malaysia, Japan, Taiwan)

Public university: The University of The West Indies

The system is complicated somewhat by the five campus model of the University: three main campuses in Barbados (Cave Hill), Jamaica (Mona), and Trinidad & Tobago (St Augustine), one further campus in Bahamas, and the Open Campus dedicated to distance education. The majority of health-sector training is offered in Jamaica and Trinidad & Tobago with Cavehill now offering the MBBS. The UWI admissions process is organised at the campus-level, and so information on applicants, admissions, and graduates requires access to three administrative centres. At the completion of this report, two centres had provided information (Barbados and Jamaica).

The SVG Community College

This is a relatively new institution, however, nurse training has been ongoing for a number of years under the auspices of the School of Nursing. The School was originally part of the Ministry of Health, and was included in the budget until 2008. In 2009, nurse training moved to the Division of Nurse Education at the Community College.

Off-shore private university: Trinity School of Medicine

No quantitative data were available for this institution but some of the descriptive items are available online (see Table 6.14).

The number of applications and entrants to professional training programs

The number of applicants and entrants to The University of the West Indies for the academic years 2006-7 and 2007-8 is presented in Table 6.11. The equivalent number of applications and entrants to the SVG Community College is presented in Table 6.12.

Data on the number of graduates are available from both the Jamaican and Barbados campuses of the University of the West Indies, and this information is reported in Table 6.13.

Table 6.11: The number of applicants and percentage admitted for 9 course groups for ALL applicants, and for citizens and residents of Saint Vincent and the Grenadines (SVG)

Training	2006-2007				2007-2008			
	Apply		Accept		Apply		Accept	
	ALL	SVG	ALL (%)	SVG	ALL	SVG	ALL (%)	SVG
Medical undergraduate	805	3	186 (23.1)	-	1,089	6	232 (21.3)	3
Medical postgraduate	110	1	55 (50.0)	-	131	1	48 (36.6)	1
Nursing undergraduate	716	-	385 (53.8)	-	1,034	2	532 (51.4)	2
Nursing postgraduate	58	2	28 (48.3)	1	74	4	46 (62.1)	1
Public Health	78	-	40 (51.3)	-	94	1	50 (53.1)	1
Physical Therapy	83	2	20 (24.1)	-	177	2	51 (28.8)	-
Nutrition	27	-	11 (40.7)	-	35	-	22 (62.9)	-
Counselling	3	-	3 (100)	-	6	-	3 (50)	-
Radiography	45	-	31 (68.9)	-	205	-	27 (13.2)	-
TOTAL	1,925	8	759 (39.4)	1	2,845	18	1,011 (35.5)	9

Table 6.12: The number of applicants and percentage admitted to the SVG Community College - Division of Nursing Education

Programme name	Places	Application	In training	Age range	Age range at graduation	Gender
Registered nurse	166	Unknown	166	18-36	21-38	F: 158, M: 8
Midwifery	20	-	0	-	-	-
Nursing assistant	25	Unknown	25	18-35	Unknown	F: 24, M: 1
TOTAL	211		191			F: 182, M: 9

Table 6.13: The number of graduates from The University of the West Indies (Jamaica and Barbados campuses only) from 9 course groups for ALL applicants, and for citizens and residents of Saint Vincent and the Grenadines (SVG)

Training	2003		2004		2005		2006	
	ALL	SVG	ALL	SVG	ALL	SVG	ALL	SVG
Medical undergraduate	96	0	90	0	76	0	127	0
Medical postgraduate	33	0	30	0	33	0	32	0
Nursing undergraduate	0	0	20	0	42	0	237	0
Nursing postgraduate	30	0	38	0	20	0	29	0
Public Health	16	0	33	0	33	0	21	0
Physical Therapy	11	0	7	0	12	0	16	0
Nutrition	2	0	10	0	9	0	1	0
Counselling	0	0	61	0	12	0	74	0
Radiography	0	0	0	0	0	0	0	0
TOTAL	188	0	289	0	237	0	537	0

6.5. Education System Related to HRH - Descriptive Information

Both the University of the West Indies and The SVG Community College are involved in the training of HRH in SVG. The Jamaican and Trinidadian campuses of the UWI train the majority of the professions associated with HRH, with the Cave Hill Campus involved in the training of social workers and psychologists as well as providing clinical training for the final two (clinical) years of the MBBS course. In September 2008 the University Medical School in Barbados was upgraded to a full faculty (The Faculty of Medical Sciences) and now offers a 5-year MBBS program.

The SVG Community College - Division of Nursing Education offers three of types of nursing related certificate courses (Registered Nursing, Midwifery and Nursing Assistant). The SVG Community College was established by "The SVG Community College Act.2005" and is funded and regulated by the government.

SVG has one off-shore university medical college (Trinity School of Medicine) and available descriptive data are detailed below.

Table 6.14: Descriptive data items for Trinity School of Medicine

Item	Description	Reference
2a/3b	Regulatory tools/accreditation	http://www.trinityschoolofmedicine.org/admissions/technical-standards.html
3h	Number of years training	http://www.trinityschoolofmedicine.org/faq/index.html
3i	Entry requirements	http://www.trinityschoolofmedicine.org/admissions/admission-requirements.html
3k	Tuition cost	http://www.trinityschoolofmedicine.org/admissions/financial-information.html

The following detailed tables (Table 6.15 to Table 6.18) cover the descriptive data items in the "education for HRH" section of the core dataset (see Appendix 1 for details of the core dataset).

Table 6.15: Core Dataset Item 3C.
Number of HRH worker training degree courses offered across the three main campuses of the University of the West Indies (and see Appendix Three)

Professional category	Faculty	Campus	Postgraduate	Degree	Cert./Dip.
Doctor	Medical Sciences	Mona	29	1	
	Medical Sciences	Cavehill	6	1	
	Medical Sciences	St. Augustine	26	1	
	Grad School	Mona	1		
Nursing	Medical Sciences	Mona		4	2
	Medical Sciences	St. Augustine	6	1	
Dentistry	Medical Sciences	St. Augustine	1	1	
Pharmacy	Medical Sciences	St. Augustine	2	1	
Social work	Social Sciences	Mona		1	1
	Social Sciences	Cavehill	1	1	
	Social Sciences	St. Augustine	2	1	
Rehabilitation	Medical Sciences	Mona		1	
Technologists	Medical Sciences	Mona		1	
Public health practitioners	Medical Sciences	Mona	5		
	Medical Sciences	Cavehill	2		
	Medical Sciences	St. Augustine	4		
	Humanities & Education	St. Augustine	1		
	Pure & Applied Sciences	Mona	2		
	Grad School	Mona	1		
Nutritionists	Medical Sciences	Mona	3		
	Science & Agriculture	St. Augustine		2	
	Grad School	Mona	1		
Mental Health	Social Sciences	Mona	2		1
	Social Sciences	Cavehill		1	
	Social Sciences	St. Augustine	5		1

Table 6.16: Core Dataset Item 3l. Entry requirements for each professional qualification

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Doctors	Medical Sciences	Mona, Cavehill, StA	Medicine & surgery	MBBS	SCHEME A: Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent. Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B: Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent. Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C: Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent. Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required.
Nurses...	Medical Sciences	Mona	Advanced nursing administration	Cert.	Unavailable
			Advanced nursing education	Cert.	Unavailable
			Generic nursing	BSc	5 CXC subjects or O-levels Applicants' academic qualifications must include the following subjects/ levels:English language, Mathematics, Physics or Statistics One subject from: Biology, Human & Social Biology, Integrated Science Two or more subjects from:: Agricultural Science, Geography, Caribbean History, a modern language, Social Studies, Religious Education, Food & Nutrition, Home Economics Management, Principles of Accounts, Principles of Business, Information Technology or Chemistry. No Applicant can have more than 2 subjects at CXC General 3 or at GCE level C or a combination of both.
			Nursing education	BSc	Unavailable
			Post registered nurse		
			Nursing administration		

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...continuation of Table 6.16.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
...Nurses	Medical Sciences	StA	Nursing	BSc	Passes in at least five (5) subjects at CXC (CSEC) General Proficiency (Grades I or II and from 1998 Grade III) or GCE O-level or approved equivalents Passes in at least two (2) subjects at CXC (CAPE) or GCE A-level or approved equivalents, OR Passes in four (4) GCE subjects or approved equivalents, of which at least three (3) must be at the A-level or equivalent
	SVGCC	SVGCC	Registered nursing	Cert.	18-35 years old 5 GCE/CXC O level subject. English + 1 science compulsory Written application, successful interview + medical. 2 references.
	SVGCC	SVGCC	Midwifery	Cert.	Registered Nurse Certificate 6 months post basic experience Positive clinical evaluation, written application Licensure with General Nursing Council of SVG + membership with SVG Nurses Association.
	SVGCC	SVGCC	Nursing assistant	Cert.	18-35 years old 3 GCE/CXC O level subject. English + 1 science compulsory Written application, successful interview + medical. 2 references
Dentistry	MS	StA	Dental surgery	DDS	See MBBS
Pharmacy	Medical Sciences	StA	Pharmacy	BSc	SCHEME A: Passes in two (2) units of Chemistry, Biology or Zoology, and Physics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Mathematics is also required SCHEME B: Passes in two (2) units of Chemistry, Biology or Zoology, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Physics is also required SCHEME C: Passes in both units of Chemistry, Physics, and Mathematics at CAPE or GCE A-level equivalent Pass in CSEC (CXC) General Proficiency or GCE O-level Biology is also required SCHEME D: Passes in both units of Chemistry, and one other from Biology, Zoology, Physics or Mathematics at CAPE or GCE A- Level equivalent Passes in CSEC (CXC) General Proficiency or GCE O-level Mathematics and Physics also required

Continues on next page...

...continuation of Table 6.16.

Profession	Faculty	Campus	Course name	Degree	Entry requirements
Social workers	Social Sciences	Mona, Cavehill, StA	Social work (special)	BSc	Passes in five (5) subjects including English Language at CSEC (CXC) General Proficiency, Grades I or II and from 1998 Grade III) /GCE O-level AND passes in at least two (2) subjects at GCE A-level OR other approved Associate degrees, Diplomas and Certificates, including the two-year certificate in Social work from the UWI.
Rehabilitation workers	Medical Sciences	Mona	Physical therapy	BSc	CXC General Proficiency Examination Five (5) subjects - Compulsory - English Language, Mathematics Caribbean Advanced Proficiency Examination (CAPE) / Other Requirements Any two 2-unit CAPE, or tow GCE Advanced Level passes from the following list of subjects: Physics, Chemistry, Mathematics, Biology.
Technologists	Medical Sciences	Mona	Diagnostic imaging	BSc	Possess a minimum of six(6) CSEC CXC subjects, grades 1-3or equivalents in the following: English Language, Mathematics or Physics, Biology or Human Biology, one other science subject, and two other subjects.
Nutritionists	Science & Agriculture	StA	Human nutrition and dietetics (special)	BSc	Passes in a minimum of five (5) subjects at CSEC (CXC) General Proficiency (Grades I – III) or GCE O-level, or their equivalents, which must include: English Language, Mathematics and any two (2) of the following: Chemistry, Biology, Agricultural Science, Physics, Geography AND Passes in at least two 2-unit CAPE courses or two GCE A-level subjects, at least one of which must be a Science subject OR A Diploma or Associate degree in Agriculture, Nutrition and Dietetics, or Science from a recognised tertiary level institution, with normally a minimum average of B or GPA of 2.75.
			Institutional and community nutrition	BSc	
Mental health	Social Sciences	Mona	Psychology	BSc	
		Cavehill	Psychology (special)	BSc	
		StA	Psychology	BSc	
Alternative health practitioners	Not applicable				
Other relevant groups	Not applicable				

StA = Saint Augustine campus, Trinidad.

SVGCC = Saint Vincent and the Grenadines Community College.

Table 6.17: Core Dataset Items 3C (SVGCC only), 3H and 3K. Duration of course and tuition costs for the University of the West Indies, and the SVG Community College

Profession	Faculty	Campus	Course name	Degree	Duration (years)	Tuition (ECDS) (for nationals)
Doctors	Medical Sciences	Mona, Cavehill, StA	Medicine & surgery	Cert.	4/5	145,973 [a]
Nurses	Medical Sciences	Mona	Advanced nursing administration	Cert.	Unavailable	Unavailable
			Advanced nursing education	Cert.	Unavailable	Unavailable
			Generic nursing	BSc	3	Unavailable
			Nursing education	BSc	3	Unavailable
			Post registered nurse	BSc	3	Unavailable
			Nursing administration	BSc	3	Unavailable
		StA	Nursing	BSc	3	Unavailable
	SVGCC	SVGCC	Registered nursing	Cert.	3	82,920
			Midwifery	Cert.	1	Unavailable
			Nursing assistant	Cert.	1.5	Unavailable
Dentistry	Medical Sciences	StA	Dental surgery	DDS	4	Unavailable
Pharmacy	Medical Sciences	StA	Pharmacy	BSc	3	Unavailable
Social workers	Social Sciences	Mona, Cavehill, StA	Social work (special)	BSc	3	46,592 [b]
Rehabilitation workers	Medical Sciences	Mona	Physical therapy	BSc	3	Unavailable
Technologists	Medical Sciences	Mona	Diagnostic imaging	BSc	3	Unavailable
Nutritionists	Science & Agriculture	StA	Human nutrition and dietetics (special)	BSc	3	46,592 [b]
			Institutional and community nutrition	BSc	3	46,592 [b]
Mental health	Social Sciences	Mona	Psychology	BSc	3	46,592 [b]
		Cavehill	Psychology (special)	BSc	3	46,592 [b]
		StA	Psychology	BSc	3	46,592 [b]
Traditional / Alternative health practitioners						
Other relevant groups						

[a] For those from contributing countries only up to 83842 ECDS may be paid by the national's government.

[b] For those from contributing countries only up to 45428 ECDS may be paid by the national's government.

StA = Saint Vincent and the Grenadines; SVGCC = SVG Community College.

Table 6.18: Core Dataset Items 3N to 3S. Professional training

Item	Brief item description	UWI	SVGCC
3n	Ethnic/social sensitivity	Not known	Covered in Registered Nurse and Nursing Assistant course
3o	Shortages in faculty members	Not known	Short of 4 staff members
3p	Curriculum matched to epidemiological profile	Not known	When nurse training was under the MoH, curriculum may have been matched to epidemiological profile. Now that training comes under the Community College it is not clear if this link between MoH and curriculum development will be maintained.
3q	Are there socio-cultural components	Not known	Sociology: Students are taught about the structure and function of society. Including components such as characteristics and factors influencing culture and how these factors and beliefs may influence the individual through the health-illness continuum.
3r	Curriculum renewal process	Not known	Last review was done in 1986. Course outline reviews were conducted in 2003 and 2006. Outlines were amended to reflect current educational, health and disease trends.
3s	Lines of communication between curriculum development and HRH needs	Not known	Curriculum development involves all relevant stakeholders from both education and health.

Items 3t, 3u, 3v, 3x - Professional development training

At the hospital both the nurses and doctors have access to in-service training. Every Wednesday there is a CME lecture organised by the Medical Director. The nurses' course covers a range of topics from clinical care to management skills. In 2007 approximately 388 nurses were attending these courses, this number has now doubled. There is also an annual symposium (Sir Arnold Cato) that provides opportunities to hear expert from overseas. At present as CME is not a formal requirement for re-registration and data concerning credits offered were unavailable.

Items 3w, 3y - Fellowships

For students who are accepted onto UWI courses that fall into priority areas economic costs are paid by the Vincentian government. In addition to these contributions to attend UWI scholarships are also available from various countries. The Public Service Commission (PSC)-Training Department is responsible for processing the applications for these scholarships. For Cuba the PSC shortlists applicants in accordance with the criteria then the Cuban government makes final selection. For scholarships based in Venezuela interviews are conducted at the local embassy. For Cuba a minimum of 2 A -levels are required (preferably sciences) consideration to socio-economic status is also given. Last year there were 50 applicants in a range of subject areas, 19 scholarships were awarded. Details of HRH related scholarships awarded, and expected graduates are detailed in the tables below.

Table 6.19: Number of students currently enrolled via scholarship schemes

Area of study	Gender	Cuba	Venezuela	Others [a]	TOTAL
Medicine	Female	10	3	15	28
	Male	1	1	8	10
Nursing	Female	62	0	4	66
	Male	4	0	1	5
Medicine related field	Female	1	0	13	14
	Male	1	0	5	6
TOTAL		79	4	46	129

[a] Off-shore universities provide 5 tuition scholarships per year (St Georges University-3 + Trinity School of Medicine-2).

Table 6.20: Expected graduates from scholarships

Area of study	Gender	2008	2009
Medicine	Female	8	4
	Male	0	1
Nursing	Female	5	1
	Male	0	0
Medicine related field	Female	12	6
	Male	0	1
TOTAL		25	13

7. Discussion

Strategic HRH planning involves four distinct stages:

(1) Situational analysis

(2) Assessing and forecasting demand for HRH

(3) Analyzing the supply of HRH

(4) Developing action plans to close any gap between HRH supply & demand

This project forms the first stage. To be a valuable tool in HRH planning, data collected for the situation analyses need to be accurate, complete, accessible, easily anonymised and relevant to policy makers. Ongoing successful data collection requires those collecting the data to understand that without complete and accurate HRH data, HRH planning cannot be useful.

Continuing data collection will enable realistic forecasting, while good links with the education institutions will enable the estimation of HRH supply.

In addition to the quantitative information need for HRH planning a framework of supporting policies are also required to manage processes such as staff recruitment and performance management. Analysis of data on length of service can be used as a benchmark for the success of this framework, but in an environment that offers tenured staff positions, the value of this type of analysis is diminished.

To facilitate ease of data collection the Project Core Data Set was divided in to the four usual data sub-sets:

- HRH Data- Quantitative (Item 1)
- HRH Data - Descriptive (Items 2b-2k)
- Education Data related to HRH - Quantitative (Item 3a-3m)
- Education Data related to HRH - Descriptive (Item 2a, 3n-3s -professional training: Items 3t-3v,3x- in-service training. Items 3w, 3x - scholarships)

This discussion will continue with this format.

7.1. HRH Data - Quantitative (Item 1)

This data sub-set was divided into the three data groups: public healthcare sector, private healthcare sector and NGOs.

The public sector

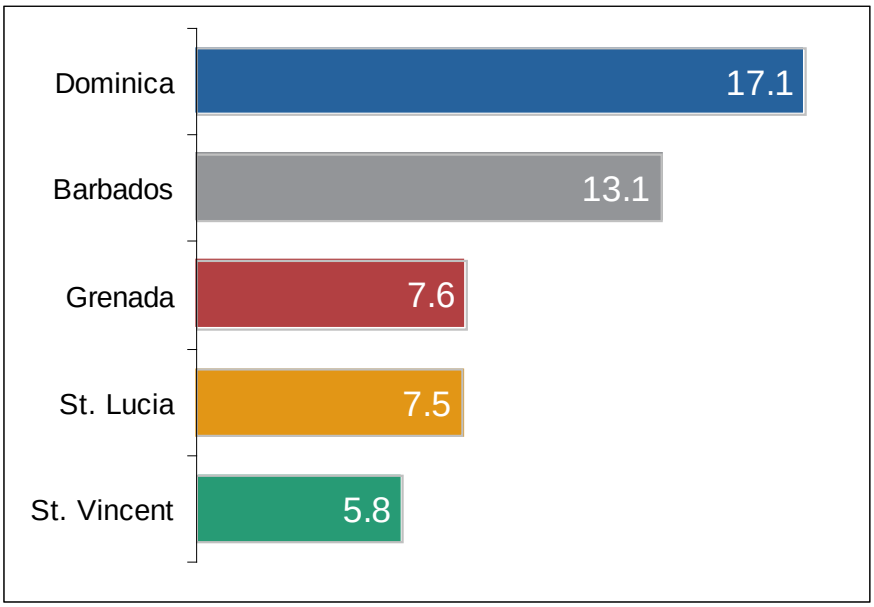
Data for public sector HRH staff in each country came from Ministries of Health. The most reliable and readily useable (individual-level and electronic) data were obtained from Smart-Stream payroll systems used by all four countries. As all health professionals must register to practice, it was anticipated that information held by the registration councils would be a good alternate data source for this sector. Unfortunately, no electronic data were available and in some cases even accurate hard copy data were not readily accessible. Consequently, an accurate picture of health care workers practising in the private sector could not be created. A review of the paper documentation available from the other councils suggested that insufficient data were currently collected by these councils to be useful to the ongoing efforts of an HRH Observatory. These registration councils could be extremely valuable as an information source. More data are needed, with the information collected being stored and regularly updated in electronic format using purpose-built databases .

The World Health Organization recommend that for the delivery of basic health care services 25 doctors, nurses & midwives are needed per 10,000 population. The table below summarise the statistics for the EC countries. All countries reached this minimal recommended level although with considerable variation between countries, with the density of doctors, nurses and midwives ranging from 26 per 10,000 in St. Lucia to 68 per 10,000 in Dominica (and see box below).

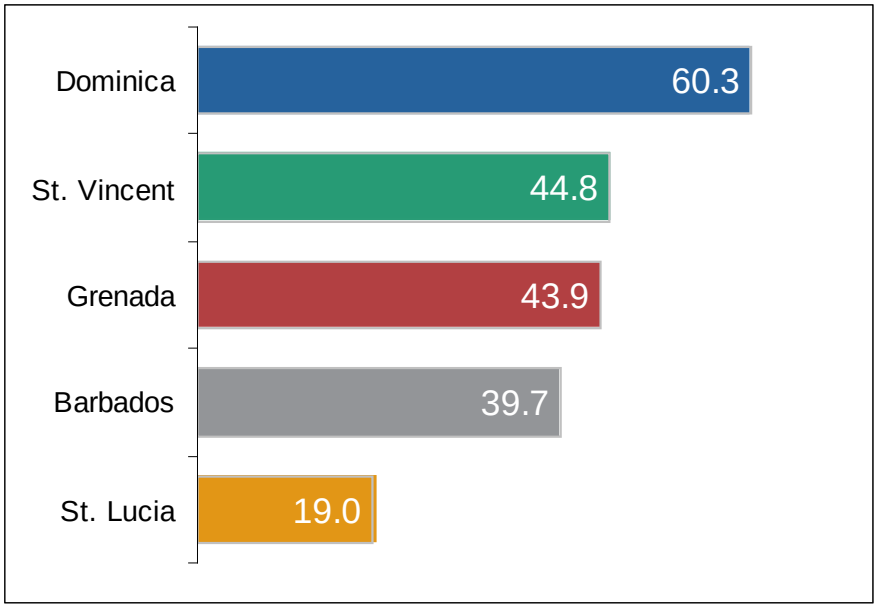
Dominica	68 doctors, nurses & midwives/10,000 77 doctors, nurses, midwives & nursing assistants/10,000
Grenada	52 doctors, nurses & midwives/10,000
Saint Lucia	26 doctors, nurses & midwives/10,000 29 doctors, nurses, midwives & nursing assistants/10,000
Saint Vincent and the Grenadines	31 doctors, nurses & midwives/10,000 51 doctors, nurses, midwives & nursing assistants/10,000

The number of doctors and nurses in each of the five Eastern Caribbean countries are presented in the figures below. Dominica has the highest density of both doctors and nurses, but the differences across countries seen in doctors is not replicated with nurses. The high density of doctors in Barbados may be the result of the presence of a public university on island. The number of doctors in Dominica is slightly inflated, due to the inclusion of Cuban nationals For the nurses the figures include nursing assistants and in St Vincent & the Grenadines the figures include two additional nursing categories (nursing auxiliary and nursing aide).

(A) Doctors



(B) Nurses



Private sector

Information concerning this sector were obtained from professional association or the Yellow Pages. Only data concerning doctors, dentists and pharmacists were available. To obtain a more accurate picture of the health professionals in the private sector a full national survey is needed.

Recommendations for all four countries	
Recommendations for policy-makers	**Recommendations for users**
• Utilize full functionality of Smart Stream within the public healthcare sector. • Expand data collected by registration councils to include whether employed in public- or private-sector. Include employees on part-time or contract employment to allow the assessment of full-time equivalent staffing. • Encourage registration councils to establish and maintain electronic records to enable estimation of individuals in the private sector • Improve quality of key primary data sources such as registration councils. • Establish a mechanism for data sharing with unions and professional associations • Utilise this data collection exercise as the first of repeated that allow HRH trends to be monitored over time. It may also allow tracking of improvements in data quality and collection methods e.g. less missing values.	• Design and offer a data management training seminar to describe how organizational data can feed into HRH estimates, and how they can best manage their data using simple process improvements. • Develop method for electronic mapping of "government occupations" to standard classifications described in section 2.3.
Additional country-specific recommendations for policy-makers	**Additional country specific recommendations for users**
Grenada	
Ensure list of all registered health professionals are listed printed in the Gazette. This only happens for nursing.	
Saint Lucia	
Ensure the list of doctors listed in Gazette is accurate. Ensure list of other registered health professionals are listed printed in the Gazette. This only happens for nursing.	Standardization of job titles in Smart Stream.
Saint Vincent and the Grenadines	
Ensure list of all registered health professionals are listed printed in the Gazette	Ensure completeness of Smart Stream; e.g. ensure gender and age are always entered.

An alternative (longer term, but potentially more cost-effective) approach would be to ensure the reliability of the registration council information, which would enable more accurate assessment of private sector workers.

Other data sources

In addition to the above sources, alternative sources of data such as unions and professional associations are also accessible. Data were not always available from these sources, and this situation could be improved with a systematic engagement between the relevant organisations and the Ministry of Health. Although not key to primary data collection, these sources could provide useful data for validation purposes.

7.2. HRH Data Descriptive (Items 2b to 2k)

Much of the public healthcare sector regulatory framework and management practices are described in legislation.

It was not possible to obtain details of the regulatory framework and management practices of the private healthcare sector. To do this would require further network development, a thorough survey and face-to-face interviews. Across the ECC residents have access to both private and public general practitioners. Historically, obtaining information from the private sector has not been easy, but for HRH issues to be addressed effectively, engagement of the private sector in the process is crucial.

Recommendations for all four countries	
Recommendations for policy-makers	**Recommendations for users**
• Utilize full functionality of Smart Stream within the public healthcare sector. • Develop mechanism to monitor and control professional registration with appropriate punitive measures for practising without registration. • Ensure regular occurrence of staff appraisals/ performance review.	• Utilize full functionality of Smart Stream. • Conduct survey to determine management practices of private healthcare providers.

7.3. Education Data related to HRH Quantitative (Items 3a to 3m)

Across the ECC residents have two public choices for local/regional further education, Community/State Colleges (CC) and the University of the West Indies (UWI). Residents also have access to off-shore universities (mostly for medical degrees) and overseas government scholarship programmes e.g. Cuba. No quantitative data were available from the off-shore universities. Data obtained from the community/state colleges were hard-copy and were converted to an electronic format. UWI comprises three campuses: Mona (Jamaica), Cavehill (Barbados) and St Augustine (Trinidad and Tobago), all offering a different selection of courses. The bulk of the HRH training takes place in Mona and St Augustine, although (as of 2008-9) Cave Hill now has a Faculty of Medical Sciences. Cave Hill primarily runs courses pertaining to the Professional Categories of Social Work, Medicine and Mental Health. So, those interested in the other HRH professions must study in Jamaica or Trinidad. Cave Hill data were obtained in an electronic format using the previously described methods. Data from Mona was made available with the assistance of Professor Rainford Wilks (from the Jamaican HRH team). There was no counterpart in Trinidad, and data from St Augustine campus remains undelivered.

Recommendations for all four countries	
Recommendations for policy-makers	**Recommendations for users**
• Ensure regular communication regarding number of applications, graduates, etc.	• Identify and meet cross-campus person responsible for admissions. • Establish methods/processes for future data collection.

7.4. Education Data related to HRH Descriptive

Professional training (Items 3n to 3s)

Only St Vincent and the Grenadines and Grenada were able to provide complete information regarding these items. Detailed syllabii were not available for the courses so it was not possible to establish training around social sensitivity or socio-cultural training. We were unable to gain access to the relevant individuals involved in curricula development for the various professional groups.

In-service training (Items 3t to 3v and 3x)

In-service training is not a prerequisite/condition for professional registration, however, some professions e.g. nursing are looking to change this. As described earlier, some organisation/associations conduct in-service training activities, but this is not standard practice.

Scholarships (Items 3w and 3y)

Most data were obtained in hard copy or via interview. Electronic record keeping would enable monitoring of trends in course applications, as well as having a potential source of validation data concerning residents following HRH professional training.

Recommendations for all four countries	
Recommendations for policy-makers	**Recommendations for users**
• Establish network of health planners and curricula developers across educational institutions to ensure that existing HRH levels can be maintained, improved and be focussed towards the appropriate priority health areas. • Encourage professional development as part of on-going registration process. • Establish in-service training programme.	• Establish network of curricula developers across UWI. • Establish details of how all curricula are developed and renewed. • Determine details of current in-service training.

7.5. Technical Recommendations

(01) Develop formalised data quality assessment criteria

In this report, informal data quality check system was implemented to 'grade' the various datasets received. The assessment of data quality should be formalised, to promote a standard method for assessing quality of collected resources. Formal data quality standards and methods are available from organisations such as the International Monetary Fund Data Quality Reference website (http://dsbb.imf.org). Moreover, this would act as a starting point for improving the quality of the future data.

(02) Develop a standardised methodology for data entry, management and archiving

More formal procedures for standardised data management, data analysis, and 'databasing' are needed to ensure that the data obtained during the course of this situation analysis are comparable, and easily updated by others in the future.

(03) Code job and industry data beyond ISCO-88 level one

Census data are a rich potential source of information on health sector workers, but to be useful this national enumeration must code job and industry data in greater detail. Currently, job codes are only recorded to the equivalent of ISCO-88 level 1. Coding to level 3 (and level 4 for clinical specialties) would transform the ability to report HRH summaries and monitor trends.

(04) Develop and conduct seminars on data collection, entry and storage

Much of the data were available in an electronic format, however, in many cases the data sets were not readily useable due to poor data entry and management processes. There were exceptions, payroll systems were uniformly of a high standard. Training in simple data management techniques would be valuable.

(05) Establish a priority list of item from the core data set

Data collection was not straightforward (and in some cases was arduous). The project "core" dataset remains large, and there should be some efforts in establishing an order of priority for items in this dataset – items that are vital to HRH planning and development. This would allow future projects to focus efforts on priority data.

(06) Long-term: GIS mapping of healthcare districts to enumeration districts to facilitate HRH planning

In geographically small nations such as the ECC, healthcare resource planning could be greatly enhanced with the ability to offer greater geographical accuracy when describing spatial aspects of healthcare resources. Additionally, for the purpose of health services management the ECC use health districts which do not map directly onto census enumeration districts or parishes. Currently, GIS projects are underway across the ECC, to map the countries. If the MoH can provide health district information to the GIS project, these too can be mapped allowing accurate data concerning health district populations.

APPENDIX ONE
CORE DATASET FOR PAHO DATA MANAGEMENT PROJECT

Developed through discussions with four research teams
(Barbados/Eastern Caribbean, Belize, Jamaica, and Trinidad & Tobago)
Christ Church, Barbados
November 28-29, 2007

1. STOCKS AND FLOWS

1A. Number of Workers in Health Activities

Numbers of Workers Reported in Each Professional Group (check and footnote differences with ISCO 88 –see below– if necessary) and are to be reported in the following categories:

1. Total Head Count
2. Total Head Count in Active Practice
3. Total Hours Worked
4. A definition of Full Time Equivalent for the profession in the country (if exists)

Numbers in the above three areas must be also shown for:

- Combined Totals
- Gender Specific Totals
- Age Specific Groupings (It is recommended to report age groupings recommended by decade: 20-29 years; 30-39 years; etc. This grouping will match most census reports)

1B. Distribution of Workers in Health Activities

- Distribution according to Geographical Units (regional health authorities, parishes)
- Distribution by Population Size (i.e. numbers per 10.000 pop.)
- Distribution by Urban vs. Rural Areas (Group recognized that there is a common understanding of the terms “urban” and “rural” but that specific definitions vary – please footnote general description)
- Distribution working in Hospitals vs Non-Hospital Settings (Clinics, etc.) (Footnote or specify those that work in both when possible)
- Distribution working in Public Practice vs. Private Practice vs. NGO’s (Footnote or specify those that work in both when possible, or quote studies showing evidence

of double or multiple employment with estimates of relative weight of this condition)

- Distribution by Geographically Distinct Minority Populations (This should be gathered through secondary data sources)

  ~ In this study, minority populations are defined by ethnicity, language and religious groups that are in smaller numbers than the majority population group). In addition, and socio economic status?

  ~ In this study, minority populations that are included are only those living in distinct geographic areas.

- Distribution by Socio-Economic Level (Recommended through proxies, such as human development index)

1C. Professional and Subsets of Workers in Health Activities

The following professionals and subsets should be included in the core data set. Standard definitions of the each professional category and subset to be included can be compared to the international guideline of the International Labour Organization (ILO) in the International Standard Classification of Occupations (ISCO 88) and point out those professions that differ from the ILO classification:

http://www.ilo.org/public/english/bureau/stat/isco/isco88/major.htm

Individual country teams may expand this set to suit specific interests of each country.

- Medical Doctors - General Practitioners and Specialists
- Nurses - Registered Nurses and Other Types of Nurses (Titles and Brief Qualifying Description)
- Dentists and Allied Professions in the “Family” of Dentistry
- Pharmacists and Allied Professions in the “Family” of Pharmacy
- Social Workers (Optional: to report total number of social workers, and then any significant subset)
- Rehabilitation Workers (Physical Therapists, Occupational Therapists, etc)
- Technologists (Laboratory, Radiation, etc.)
- Public Health Practitioners (e.g. Public Health Officers, Health Educators, Environmental Health Officers / Workers, etc.)
- Nutritionists
- Mental Health other than Psychiatrists (e.g. Psychologists)
- Traditional/Alternative Health Practitioners (e.g. traditional healer, acupuncturist, etc.)
- Other Relevant Groups

Additional Data Information to Include in Stocks and Flow

a. Number of Health Workers as a Percentage of the Whole Workforce in the Country / Region.

b. Number of Positions in Health Services (Hospitals, Health centers)

c. Number of Positions that are Unfilled or Vacant (for 90 days or more), and the Percentage of Total Positions that this Number Represents (Vacancy Rate). If other definition or measure is used, please explain.

d. Projected Public Budgets (salaries and benefits) for Health and Projected Budget for HRH over the next five years.

e. Approved Loans or Donors' Projects involving Scaling-Up health Facilities that will Require Staffing in the next 5 years

2. Regulatory Framework and Management Practices (Descriptive)

a. Main regulatory tools concerning University training programs, accreditation, approval, and financing.

b. Main regulatory tools concerning health employment: Public sector regulations, private sector, NGO's specifically: selection systems, performance management, career paths, incentives and evaluation

c. Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)

d. Regulatory and Licensing requirements for foreign workers

e. Main regulatory framework regarding unionization and collective actions

f. Contracting models (Is the permanent tenure in the public service the norm? Is the flexible, short term contract the norm?)

g. Selection process (Is there any selection process established? Or is the discretional appointment the norm?)

h. Salary and payment scales and relative values (Are there important differences between the medical and non-medical workers? The wage scale in the health sector is competitive with employment in other sectors?)

i. Performance measurement: Is there any formal process of evaluation?

j. CSME regulatory and accreditation requirements for free circulation and contracting of personnel

k. As per suggested in the workshop, if there are data on migration that can be quoted, please do it here.

3. Education System (Descriptive)

The assessment of the Education component of the HRH field calls for review not only of professional training, such as Medical or Nursing schools, but also of the multiple continuing education, in-service, and life-long training activities.

a. How many Schools and Programs to train Health Professionals are in the country?

b. How many are accredited?

c. Within the schools and programs, how many degree levels are offered / required?

d. How many universities are public / private / off-shore?

e. How many seats are in each School and in each Program (per year, and if possible, for each year over the last five years)

f. How many persons enter each school and program each year? (per year, and if possible, for each year over the last five years)

g. How many graduates in each School and Program (per year, and, if possible, for each year over the last five years and proportion of graduates from identified minority populations).

h. Number of years of training needed for each profession

i. Requirements for applying for entry to each profession

j. Number of candidates who apply to the programs, and how many are accepted, and what percentage of the applicants are actually accepted into the programs. For those that are denied, is the denial due to requirements, number of positions available, or shortages in professors, etc.?

k. Tuition cost of education for each profession

l. Average age when students graduate from each program

m. Gender ratios in each program

n. Professional programs that include ethnic/social sensitivity as part of the training

o. Are there shortages in faculty members?

p. Is the curriculum content of the various university or training institutions related to the health situation (such as matching the epidemiological profile needs and/or health priorities) of the country

q. Are there socio-cultural training components within the health curricula? If so, what type of training for what type of sensitization?

r. Description of curriculum renewal (process, frequency, etc.)

s. Are there processes and lines of communication between curriculum developers / academic leaders to coordinate curriculum design, academic priorities, and research focus with national strategic plans for health and/ or health human resources development?

t. Description of in-service training activities

u. Estimates of the Total Number of Hours and persons in in-service training.

v. Estimates of credits offered / and required in each profession for advancement. Which of those credits are also eligible as credits toward advanced degrees?

w. How many fellowships / bursaries are offered annually in each of the academic program areas?

x. Professions requiring continuing education/ license renewal

y. As per suggested by participants, please include any significant program/funding for scholarships outside the country.

Appendix Two

The number of public-service Human Resources in Health (HRH) workers in four Eastern Caribbean countries occupational category, age and gender

Table A2.1: Dominica

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Medical doctors							
Women	6	25	9	7	4	0	51
Men	4	15	24	18	4	0	65
Gender unknown	0	0	0	0	0	8	8
All	10	40	33	25	8	8	124
Nurses and midwives							
Women	70	132	118	41	5	0	366
Men	4	5	20	41	0	0	70
Gender unknown	0	0	0	0	0	2	2
All	74	137	138	82	5	2	438
Dentists and allied							
Women	0	4	6	6	0	0	16
Men	0	3	1	1	0	0	5
Gender unknown	0	0	0	0	0	0	0
All	0	7	7	7	0	0	21
Pharmacists and allied							
Women	1	1	1	3	0	0	6
Men	0	4	1	7	0	0	12
Gender unknown	0	0	0	0	0	0	0
All	1	5	2	10	0	0	18

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...continuation of Table A2.1.

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Social workers							
Women	0	0	2	1	0	0	3
Men	0	3	1	1	0	0	5
Gender unknown	0	0	0	0	0	0	0
All	0	3	3	2	0	0	8
Rehabilitation workers							
Women	0	1	1	1	0	0	3
Men	0	1	0	0	0	0	1
Gender unknown	0	0	0	0	0	0	0
All	0	2	1	1	0	0	4
Technologists							
Women	9	8	10	3	1	0	31
Men	3	7	12	5	1	0	28
Gender unknown	0	0	0	0	0	1	1
All	12	15	22	8	2	1	60
Public health practitioners							
Women	4	7	14	9	0	0	34
Men	1	5	11	10	3	0	30
Gender unknown	0	0	0	0	0	1	1
All	5	12	25	19	3	1	65
Nutritionists							
Women	0	0	0	0	0	0	0
Men	0	0	0	1	0	0	1
Gender unknown	0	0	0	0	0	0	0
All	0	0	0	1	0	0	1
Mental-health practitioners							
Women	0	0	0	0	0	0	0
Men	0	0	0	0	0	0	0
Gender unknown	0	0	0	0	0	0	0
All	0	0	0	0	0	0	0
Other health workers							
Women	9	14	8	7	1	0	39
Men	5	6	16	18	1	0	46
Gender unknown	0	0	0	0	0	0	0
All	14	20	24	25	2	0	85

Table A2.2: Grenada

Public sector facility type	Number of workers
General Hospital (GH)	433
Community Health Services (Health Districts) 1	180
Ministry of Health	60
District hospitals	98
Princess Alice Hospital	63
Princess Margaret Hospital	35
Richmond Hill Institutions	156
Mount Gay	100
Richmond Home	41
Carlton House	15
Environmental Health Services	28
Dental Services	19
TOTAL workers	974

Occupation	Number of workers
Medical doctors	69
Nurses and midwives	398
Dentists and allied	19
Pharmacists and allied	21
Social workers	1
Rehabilitation workers	5
Technologists	29
Public health practitioners	73
Nutritionists	1
Mental-health practitioners	16
Other health workers	342
ALL health workers	974

Note: Data on the age and gender of HRH workers are not available from Grenada.

Table A2.3: Saint Lucia

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Medical doctors							
Women	1	30	10	4	2	0	47
Men	0	19	17	9	8	0	53
Gender unknown	0	0	0	0	0	30	30
All	1	49	27	13	10	30	130
Nurses and midwives							
Women	61	77	69	51	7	0	265
Men	4	16	4	7	0	0	31
Gender unknown	0	0	0	0	0	75	75
All	65	93	73	58	7	75	371
Dentists and allied							
Women	1	12	6	1	1	0	21
Men	0	1	1	3	0	0	5
Gender unknown	0	0	0	0	0	1	1
All	1	13	7	4	1	1	27
Pharmacists and allied							
Women	1	10	3	0	0	0	14
Men	0	3	2	1	0	0	6
Gender unknown	0	0	0	0	0	3	3
All	1	13	5	1	0	3	23
Social workers							
Women	1	9	14	9	0	0	33
Men	0	0	2	0	0	0	2
Gender unknown	0	0	0	0	0	0	0
All	1	9	16	9	0	0	35
Rehabilitation workers							
Women	1	1	5	3	0	0	10
Men	0	1	0	1	0	0	2
Gender unknown	0	0	0	0	0	4	4
All	1	2	5	4	0	4	16
Technologists							
Women	12	13	5	7	0	0	37
Men	4	7	6	4	2	0	23
Gender unknown	0	0	0	0	0	16	16
All	16	20	11	11	2	16	76

Continues on next page...

...continuation of Table A2.3.

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Public health practitioners							
Women	7	23	41	37	3	0	111
Men	1	13	16	19	3	0	52
Gender unknown	0	0	0	0	0	2	2
All	8	36	57	56	6	2	165
Nutritionists							
Women	0	2	1	4	0	0	7
Men	0	0	0	0	0	0	0
Gender unknown	0	0	0	0	0	0	0
All	0	2	1	4	0	0	7
Mental-health practitioners							
Women	1	2	1	0	0	0	4
Men	0	2	0	0	0	0	2
Gender unknown	0	0	0	0	0	0	0
All	1	4	1	0	0	0	6
Other health workers							
Women	53	104	126	82	35	0	400
Men	34	46	71	55	18	0	224
Gender unknown	0	0	0	0	0	5	5
All	87	150	197	137	53	5	629

Table A2.4: Saint Vincent and the Grenadines

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Medical doctors							
Women	4	4	1	3	0	0	12
Men	2	4	7	3	2	0	18
Gender unknown	0	0	0	0	0	32	32
All	6	8	8	6	2	32	62
Nurses and midwives 1							
Women	37	39	35	23	3	0	137
Men	1	5	2	2	0	0	10
Gender unknown	0	0	0	0	0	121	121
All	38	44	37	25	3	121	268

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...continuation of Table A2.4.

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Nursing Assistants							
Women	0	0	18	44	2	0	64
Men	0	0	0	0	0	0	0
Gender unknown	0	0	0	0	0	63	63
All	0	0	18	44	2	63	127
Nursing auxiliaries							
Women	0	0	3	0	0	0	3
Men	0	0	0	0	0	0	0
Gender unknown	0	0	0	0	0	38	38
All	0	0	3	0	0	38	41
Nursing Aides							
Women	0	0	5	8	0	0	13
Men	0	0	4	3	0	0	7
Gender unknown	0	0	0	0	0	20	20
All	0	0	9	11	0	20	40
Dentists and allied							
Women	0	3	2	3	0	0	8
Men	0	0	1	1	0	0	2
Gender unknown	0	0	0	0	0	11	11
All	0	3	3	4	0	11	21
Pharmacists and allied							
Women	2	3	2	1	0	0	8
Men	0	1	3	2	1	0	7
Gender unknown	0	0	0	0	0	8	8
All	2	4	5	3	1	8	23
Social workers							
Women	1	0	0	1	0	0	2
Men	0	0	0	0	1	0	1
Gender unknown	0	0	0	0	0	0	9
All	1	0	0	1	1	9	12
Rehabilitation workers							
Women	0	1	1	1	0	0	3
Men	0	1	0	0	0	0	1
Gender unknown	0	0	0	0	0	1	1
All	0	2	1	1	0	1	5

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...continuation of Table A2.4.

Occupation gender	Younger than 30	30 to 39	40 to 49	50 to 59	60 and older	Age unknown	TOTAL
Technologists							
Women	0	2	1	2	1	0	6
Men	0	3	3	1	0	0	7
Gender unknown	0	0	0	0	0	11	11
All	0	5	4	3	1	11	24
Public health practitioners							
Women	2	4	9	18	0	0	33
Men	0	0	1	6	0	0	7
Gender unknown	0	0	0	0	0	27	27
All	2	4	10	24	0	27	67
Nutritionists							
Women	1	1	2	2	0	0	6
Men	0	0	0	1	0	0	1
Gender unknown	0	0	0	0	0	1	1
All	1	1	2	3	0	1	8
Mental-health practitioners							
Women	0	0	0	0	0	0	0
Men	0	0	0	0	0	0	0
Gender unknown	0	0	0	0	0	1	1
All	0	0	0	0	0	1	1
Other health workers							
Women	3	15	16	17	0	0	51
Men	3	1	9	11	1	0	25
Gender unknown	0	0	0	0	0	148	148
All	6	16	25	28	1	148	224
ALL WORKERS							
Women	50	72	95	123	6	0	346
Men	6	15	30	30	5	0	86
Gender unknown	0	0	0	0	0	491	491
ALL	56	87	125	153	11	649	923

Appendix Three

Details of The University of the West Indies degree courses related to professional training for HRH workers

Table A3.1

Profession	Faculty	Campus	Course name	Degree
Doctors...	Medical Sciences	Mona	Anaesthetics and intense care	DM
			Anatomical pathology	DM
			Cardiothoracic surgery	DM
			Chemical pathology	DM
			Emergency medicine	DM
			Family Medicine	DM, MSc
			Haematology	DM
			Clinical haematology	DM
			Laboratory haematology	DM
			Internal medicine	DM
			Medicine	DM, MD
			Microbiology	DM
			Neurosurgery	DM
			Obstetrics & gynaecology	DM
			Ophthalmology	DM
			Paediatric surgery	DM
			Paediatrics	DM
			Pathology	DM, MPhil
			Psychiatry	DM
			Radiology	DM
			Surgery ENT	DM
			Surgery general	DM
			Surgery orthopaedic	DM
			Otorhinol	DM
			Urology	DM, MD

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...continuation of Table A3.1.

Profession	Faculty	Campus	Course name	Degree
...Doctors	Medical Sciences	Mona	Medicine & surgery	MBBS
		Cavehill	Accident & emergency	DM
			Anaesthetics	DM
			Family medicine	MSc
			Internal medicine	DM
			Obstetrics& gynaecology	DM
			Ophthalmology	DM
			Medicine & Surgery	MBBS
		St. Augustine	Anaesthetics	DM, MD
			Biochemistry	MD
			Emergency medicine	MD, MSc, DipG
			Family practice	DM
			Human anatomy	
			Human physiology	
			Medical education	PhD
			Obstetrics & gynaecology	PhD, DM, MD, MPhil, DipG
			Oral medicine	MSc
			Pathology	MD
			Paediatrics & child health	DM
			Pharmacology	DM
			Primary care & family health	DipG
			Primary care & family medicine	MSc, DipG
			Psychiatry	DM, MD
			Radiology	DM, MD
			Surgery	DM
			Urology	DM, MD
	Graduate School	Mona	Diabetology	MPhil
	Medical Sciences	Mona	Medicine & Surgery	MBBS
Nurses...	Medical Sciences	Mona	Advanced nursing administration	Cert.
			Advanced nursing education	Cert.
			Generic Nursing	BSc
			Nursing (Clinical nurse specialist)	MSc
			Nursing (mental health)	MSc
			Nursing family practice	MSc

Continues on next page...

...continuation of Table A3.1.

Profession	Faculty	Campus	Course name	Degree
...Nurses	Medical Sciences	Mona	Nursing education	MSc, BSc
			Nursing	MSc
			Post registered nurse	BSc
			Nursing administration	MSc
		St. Augustine	Nursing	BSc
Dentistry	Medical Sciences	St. Augustine	Dental surgery	DDS
			Dentistry	MSc
Pharmacy	Medical Sciences	St. Augustine	Pharmacy	PhD, MPhil, BSc
Social Workers	Social Sciences	Mona	Social work (special)	BSc
			Social work	Dip.
		Cavehill	Social work (special)	BSc
			Social work	MPhil
		St. Augustine	Social work (special)	BSc
			Social work	PhD, MPhil
Rehabilitation Workers	Medical sciences	Mona	Physical therapy	BSc
Technologists	Medical sciences	Mona	Diagnostic imaging	BSc
Public Health Practitioners	Medical sciences	Mona	Community health	DipG
			Health education & health promotion	MPH
			Public Health	PhD, MPH, MPhil
			Epidemiology	MSc
		Cavehill	Epidemiology	PhD, MPhil
		St. Augustine	Community health	PhD, MPhil
			Epidemiology	PhD
			Pharmaceutics & public health	PhD, MPhil
	Humanities & Education	St. Augustine	Health Visiting	Dip.
	Pure & Applied Sciences	Mona	Occupational & environmental safety & health	PhD, MSc
	Graduate School	Mona	Public health	MSc

Continues on next page...

...continuation of Table A3.1.

Profession	Faculty	Campus	Course name	Degree
Nutritionists	Medical Sciences	Mona	Nutrition	PhD, MSc
		St. Augustine	Clinical nutrition	PhD
	Science & agriculture	St. Augustine	Human nutrition and dietetics (Special)	BSc
			Institutional and community nutrition	BSc
	Graduate school	Mona	Nutriton	MPhl
Mental Health	Social Sciences	Mona	Psychology	PhD
			Clinical psychology	MSc
		Cavehill	Psychology	BSc
	Medical Sciences	St. Augustine	Mental health related area	PhD, MPhil
	Social Sciences	St. Augustine	Clinical psychology	MSc
			Psychology	PhD, MPhil, Dip.
Traditional/ Alternative Health Practitioners				
Other Relevant Groups				

Note: DM = ??, MSc = Master of Science, MD = Medical Doctor, MPhil = Master of Phylosophy, MBBS = ??, DipG = ??, PhD = , Cert. = Certificate, BSc = Bachelor of Science, Dip. = Diploma, MPH = ??.

APPENDIX FOUR
MAPPING THE 12 OCCUPATIONAL CATEGORIES TO HEALTH PROFESSIONS

Table A4.1

Core dataset professionals categories	Barbados specific prefession types	
Medical Doctors – General Practitioners and Specialists	General Practice GPs Family Medicine Medical specialists Anaesthetists Community Medicine Dermatologists Diagnostic radiologists Emergency Medicine Internal Medicine General internists Cardiologists Endocrinologists Gastroenterologists Geriatricians Haematologists Infectious diseases Medical oncologists Radiation oncologists Medical/radiation oncologists Nephrologist Respiratory medicine Rheumatologists	Neurologists Nuclear Medicine Occupational Medicine Paediatrics Rehabilitation Psychiatrists Laboratory specialists Anatomical pathology General/clinical pathology Haematologic pathology Medical biochemistry Medical microbiology Neuropathology Surgical specialities Cardiovascular/thoracic General Neurosurgery Obstetrics & gynaecology Ophthalmology Otolaryngology Orthopaedic Plastic Urology
Nurses	Registered Nurses Mental health nurses Public health nurses	Midwives Nursing assistants Care/Health aids
Dentistry	Dentists Dental auxiliaries	Dental assistants Dental hygienists Dental technicians
Pharmacy	Pharmacists	Pharmacy technicians
Social Work	Social workers	Care co-ordinators
Rehabilitation Work	Physiotherapists Occupational therapists Rehab therapy technician	Speech therapists Chiropodists Podiatrists Osteopaths

Continues on next page...

...continuation of Table A4.1.

Core dataset professionals categories	Barbados specific prefession types	
Technologists	Laboratory technicians Radiographers	EEG technologist
Public Health Practitioners	Health promotion officer Health education officer Environmental health officers	Environmental health specialists Environmental health assistants
Nutritionists	Nutritionists Dieticians	Community health aides
Mental Health	Psychotherapist Neurophysiology technician	Psychiatric social worker Psychologists
Traditional/Alternative Health Practitioners	Acupuncturist	
Other Relevant Groups	Professional e.g Accountants + Health planning officers Technical e.g. EM Technicians + Technical officers	Administrative e.g. Stenotypists and clerical officers Ancillary e.g. maids and Orderlies

APPENDIX FIVE

MANAGEMENT PRACTICES AND EDUCATION SYSTEMS OF HUMAN RESOURCES FOR HEALTH - DESCRIPTIVE DATA AND POTENTIAL INFORMATION SOURCES

Table A5.1: Descriptive data required concerning management practices of human resources in health, and categories of potential information sources

Item	Descriptive data	Potential source of information
2A	Regulatory tools concerning University training programmes, accreditation, approval and financing.	University of the West Indies
2B	Main regulatory tools concerning health employment: selection systems, performance management, career paths, incentives and evaluation for the following - Public sector, Private sector, NGO's	Ministry of Civil Service Ministry of Health NGOs Private sector
2C	Main regulatory tools regarding licensing of professional practice (through professional boards, periodic register)	Registration councils
2D	Regulatory and Licensing requirements for foreign workers	Registration councils CARICOM
2E	Main regulatory framework regarding unionization and collective actions	Unions Ministry of Civil Service
2F	Contracting models (Is the permanent tenure in the public service vs flexible, short term contract	Ministry of Health Ministry of Civil Service
2G	Selection process (Is there any selection process established or is the discretional appointment the norm?)	Ministry of Civil Service Ministry of Health
2H	Salary and payment scales and relative values (Are there important differences between the medical and non-medical workers? Is the salary scale in health sector competitive with employment in other sectors?	Public healthcare sector Private healthcare sector
2I	Performance measurement: Is there any formal process of evaluation?	Public healthcare sector Private healthcare sector
2J	CSME regulatory and accreditation requirements for free circulation and contracting of personnel	CARICOM
2K	Any data on migration	Professional associations

Table A5.2: Source of information for education system for human resources for health - Descriptive data

Core dataset ref.	Potential data source [a]
2A	The University of the West Indies (UWI)
3N	UWI, Community / State Colleges
3O	UWI, Community / State Colleges
3P	UWI, Community / State Colleges
3Q	UWI, Community / State Colleges
3R	UWI, Community / State Colleges
3S	UWI, Community / State Colleges
3T	Public Sector, Private Sector, Non-Governmental Organizations (NGOs)
3U	Public Sector, Private Sector, NGOs
3V	Public Sector, Private Sector, NGOs
3W	Ministry of Education
3X	Registration Councils
3Y	Ministry of Education

[a] Which UWI campus is contacted will depend on the where each course is taught.

APPENDIX SIX
PREPARING THE EASTERN CARIBBEAN COUNTRIES HEALTH WROKFORCE DATASET

The data management task was to create a standardized dataset from the disparate data source information. The process was fundamentally different for HRH workforce data (individual-level electronic or hardcopy information), and education data on training the HRH workforce (aggregate data). These two areas are considered separately below.

HRH data

Data were received as individual-level electronic data (EIN) or individual-level hardcopy information (HIN). Hardcopy information was computerised, then data-source specific algorithms were applied to each dataset to standardize data ready for merging into a single HRH workforce database.

Converting HRH source data to database: data source algorithms

In Table A1 we list each data source, the data items we obtained from that source, and the data management algorithm we applied to convert the data source to a standardized format ready for the creation of the Eastern Caribbean countries health worker database.

All data management was performed using Stata statistical software (version 11, StataLP Corporation, College Station, TX, USA). Electronic datasets were converted to Stata format using Stat/Transfer (version 9, Circle Systems Inc, Seattle, WA, USA). Formatted Excel spreadsheets (often containing textual information) were stripped of all formatting before conversion. Hard copy information were converted to unformatted Excel spreadsheets by scanning and text recognition (OmniPage, version 12, Nuance software, Burlington, MA, USA) if possible, and by manual data entry otherwise.

Data Management algorithms then generally involved variations on several common procedures.

- Data often contained identifiable information, so we permanently stripped identifying features (such as names, telephone numbers, addresses) and created an anonymous unique identifier for each individual worker.
- Because the purpose of recording occupation in the various Government databases is administrative rather than statistical, the occupation information does not follow the standard classification systems such as ISCO-88. Each data management algorithm

therefore involved a semi-manual process of converting recorded occupation to aggregated occupational categories. The major occupational groups were defned by the Pan-American Health Organization at project initiation, and are described in Appendix Four.

- A set of stratification variables were required to enable cross tabulations of health worker head counts. The fundamental stratification variable was occupation (described above).Secondary stratification variables were:
  a. Age of health worker
  b. Gender of health worker
  c. Geographical location of work premises (in all four countries we used administrative regions: in Dominica there are 10 parishes, in Grenada there are 6 parishes, in St. Lucia there are 11 quarters, and in St. Vincent and the Grenadines there are 6 parishes).
  d. Private or public sector health worker
  e. Active (employed) or inactive (not employed) health worker

Data management algorithms have been written in the Stata programming language, and will be available as part of the Eastern Caribbean health worker dataset supplementary information. Additional data formats will be provided to ensure dataset access for all.

Education for HRH data

Data were received as aggregate electronic data (EAG) or aggregate hardcopy information (HAG). Hardcopy information was computerised, then simple data-source specific algorithms were applied to each dataset to standardize data. Educational data are available as a supplementary dataset to the HRH health workforce database.

The data management algorithms included several common procedures.

- The key stratification variable in these education datasets is course of study / degree programme. Course name listings were standardised, converted to numeric identifiers, and mapped to the 12 occupational categories, according to which trained cadre they supplied.
- Aggregate tallies of student intake and graduates were collected. These were converted to individual-level data by ‘expanding’ the datasets to one row per student. An indicator was then created to identify the student as ‘new’ or ‘graduating’.
- This individual-level data format then eased the process of creating further stratification variables - required to enable cross tabulations of new and graduating student head counts. The fundamental stratification variable was course type (described above). Secondary stratification variables were:
  - Age of student
  - Gender of student
- The educational institution is recorded with each line of data, with key information on that institution.

Table A6.1: HRH data items received, data management algorithms applied and final data items for each HRH data source

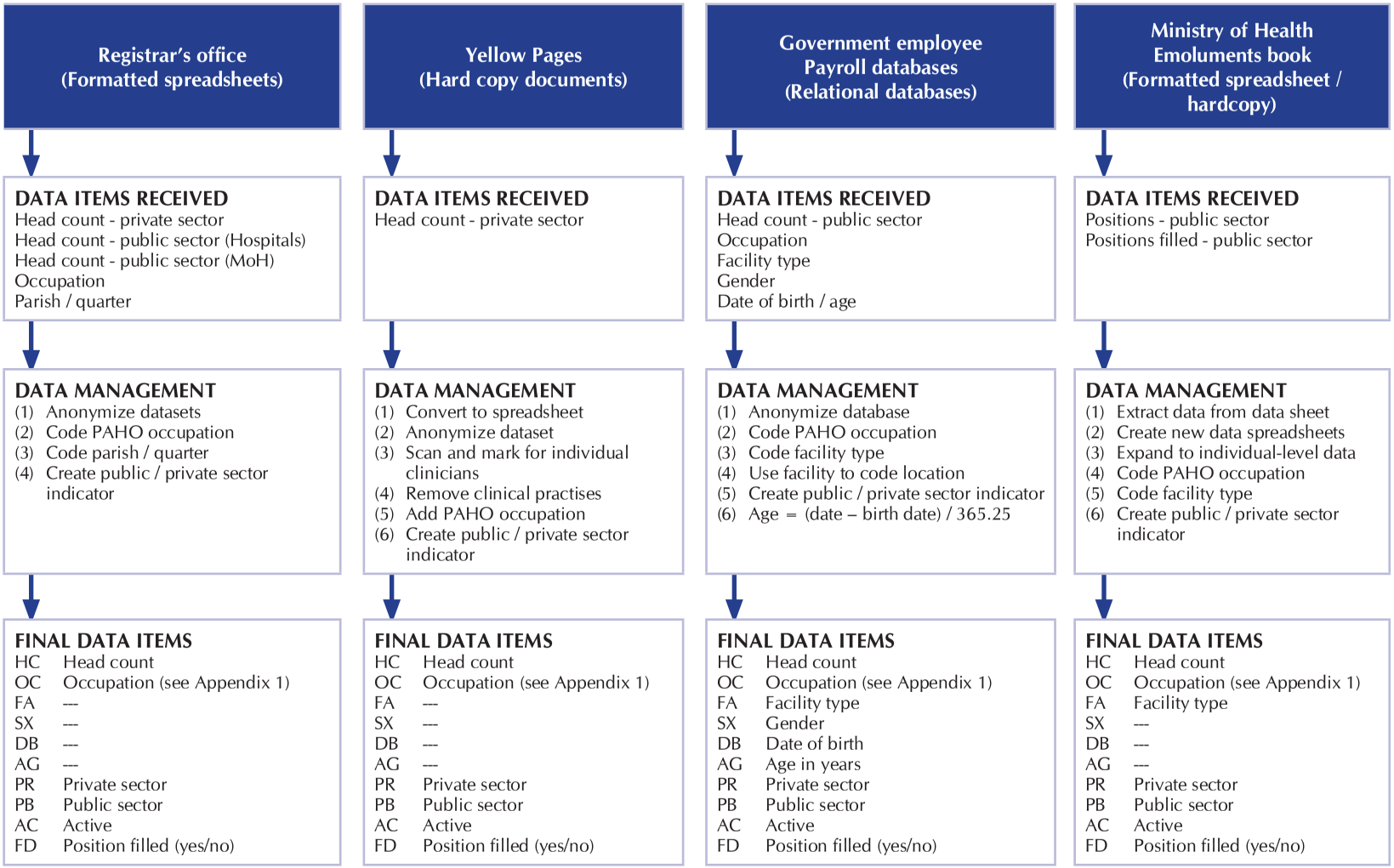
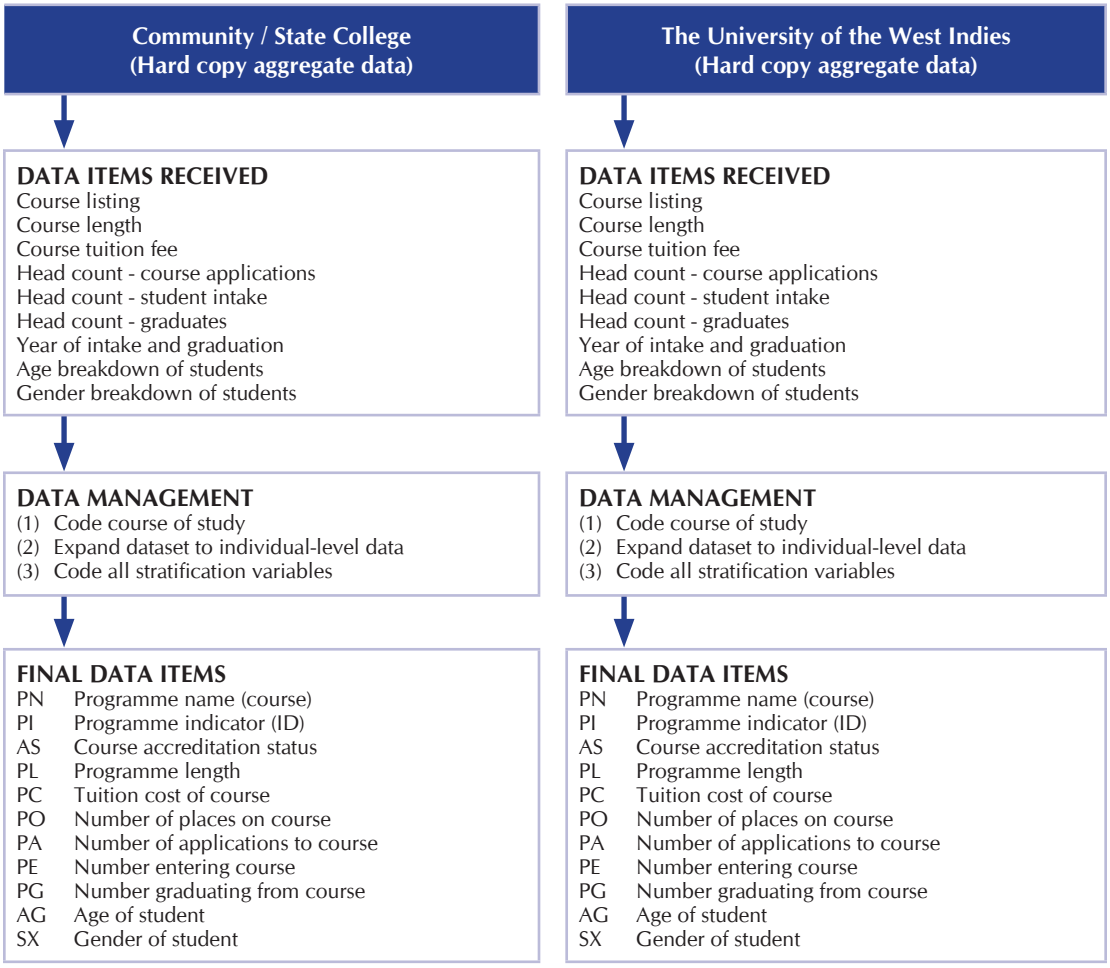


Table A6.2: Education for HRH data items received,
data management algorithms applied and final data items for each education data source



APPENDIX SEVEN
CONTENTS OF THE EASTERN CARIBBEAN COUNTRIES HEALTH WORKFORCE DATASET

The outcomes of the data management processes described in Appendix Six are two major datasets: one describing the EC countries health workforce, and one describing the educational infrastructure for training health workforce.

Dataset 1: The EC Countries health workforce dataset

This dataset contains the following data items:

Table A7.1

Variable	Description	Data type	Notes
EC	Country Indicator	Categorical	1 = Dominica, 2 = Grenada, 3 = St. Lucia, 4 = St. Vincent
HC	Head count	Integer	Each row contributes 1 person to the aggregated head counts.
OC	Occupation	integer	Uses 12-group PAHO classification (see APPENDIX FOUR)
FA	Facility type	Integer	Uses country-specific facility type
SX	Gender	Categorical	1 = female, 2 = male
DB	Date of birth	Date	dd/mm/yyyy
AG	Age in years	Integer	To nearest year
PR	Works in private sector?	Indicator	1 = yes 0 = no
PB	Works in public sector?	Indicator	1 = yes 0 = no
AC	Worker is economically active?	Indicator	1 = yes 0 = no
FD	Is position filled?	Indicator	1 = yes 0 = no

Dataset 2: Education for HRH dataset

The education for HRH dataset is a standalone supplement to the Eastern Caribbean countries health workforce database. It contains the following data items:

Table A7.2

Variable	Description	Data type	Notes
EC	Country Indicator	Categorical	1 = Dominica, 2 = Grenada, 3 = St. Lucia 4, = St. Vincent
ED	Educational institution	Categorical	Country specific categorical listing
PN	Programme name (course)	String	
PI	Programme indicator (ID)	Integer	
AS	Course accreditation status	Indicator	1 = accredited, 0 = not accredited
PL	Programme length	Integer	In years
PC	Tuition cost of course	Numeric	In international dollars
PO	Number places on course	Integer	
PA	Number applications to course	Integer	
PE	Number entering course	Integer	
PG	Number graduating from course	Integer	
AG	Age of student	Integer	To nearest year
SX	Gender of student	Categorical	1 = female, 2 = male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