The Nursing Workforce in Jordan:

A Policy Oriented Approach

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Dedication

This book is dedicated to Her Royal Highness Princess Muna Al-Hussein who has strong compassion for other fellow human beings, who has played a pivotal role in transforming nursing into an expanding and vibrant area of study and practice with high status and demand around the globe, for her continuous support for nurses and nursing in Jordan and for being responsible for laying the foundation for great academic achievements in nursing and, as a result, Jordan presently has one of the best nursing programmes in the region.

"Jordanians are Jordan's real wealth. They are known to be capable of facing challenges and realizing achievement. Thus, my government will continue to implement programs to raise the standard of education and training, and to strike a balance between the outcomes of academic and vocational education and the requirements of the national economy " .

His Majesty King Abdullah II

2006 Speech from the Throne

"Improving the standard of living for citizens also requires paying attention to health care, which is every citizen's right, male or female. A healthy human being who has no worries concerning his health or that of his children and family is the one who is able to work and produce".

His Majesty King Abdullah II

2004 Speech from the Throne

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Foreword

The world is facing a growing challenge to ensure that there are sufficient numbers in the health workforce to enable the health care systems to function effectively. The subject under discussion in this book is of great importance, and I strongly believe that the nursing workforce issues should be promoted to a much higher place on the agendas of leaders of the health professions and policy makers. There is an urgent need for a critical review of the nursing human resources situation with respect to quantity, quality, planning, development and management in Jordan.

The performance of the health care system cannot be improved without educated, valued and properly rewarded nursing and midwifery workforce. Governments, professional associations, educational institutions, and nongovernmental organizations should work closely together to meet these challenges.

This work on the nursing workforce in Jordan opens new doors and new horizons of learning, studying, analyzing, and strategizing. It results from the authors' continued strong belief in the need for a text that focuses on the analyses and synthesis of the nursing workforce based on a policy oriented approach which tackles critical nursing issues of today and tomorrow.

The book is organized to provide the reader with a framework for exploring policy issues and the application of the content in all areas of importance to nurses in the educational sector, the practice settings, policy making levels, and professional organizations.

It is a useful textbook on the nursing workforce that provides data, readable background information and practical analysis guidance on the nursing workforce in Jordan within a Policy Oriented Approach and focuses on key issues and challenges at all levels.

Muna Al-Hussein

Main Facts on the Nursing Workforce in Jordan

Our health care system should "regain its balance", it should "act more healthy", and should "engage with reality."

The critical analysis of the nursing workforce in Jordan, throughout the chapters of this book, provides nurses with knowledge on key nursing issues and policy framework to help them use their own vision and courage to influence and shape the national health policies. It provides an actionable Policy Interventions Framework for nurses at all levels regardless of their qualifications and career stages.

> *This critical analysis of the nursing workforce and the identification of key policy issues and the Policy Interventions Framework will help to initiate the type of critical dialogue that nurses must then promote in their own workplaces (hospitals, universities, health care centers), professional organizations and in their communities as well as at the national, regional, and global levels.*

* There will be a shortage in female registered nurses (RNs) in the coming five years. The shortage in the number of female registered nurses will reach its peak in 2009 mounting to 3,351. On the other hand, there will be a surplus of male registered nurses with a peak in the year 2011 as the surplus mounts to 2,463.

* The total number of nurses who will be graduating over the next four years (2008/2009-2010/2011) is 9,853 nurses. Male graduates will comprise about 60% (n=5,911) of the total graduating nurses, a percentage that is much higher than that reported by the female nurse graduates (40%, n=3,942) over the same period of time.

> *A bridge should be provided for Jordanian male nurses to be absorbed within the global health market. This is an opportunity that should be managed very well, otherwise it will transform into a wasteful loss of human resources and investments.*

* The total number of the nursing workforce in 2007 was 17,431 with an increase of 22.3% from 2003 and the registered nurses comprised about 45% of the nursing workforce.

* As for the sectors of employment, most nurses were employed by the Ministry of Health (MOH) (45%) followed by the private sector (23.1%), the military sector/ Royal Medical Services (RMs) (19.2%), university affiliated hospitals (6.6%) and public and private universities (2.4 %).

* The largest percentage of male nurses among all groups of nurses were male nurses with bachelor degrees (41.7%). Male nurses also accounted for 36% of Master prepared nurses and 24.8% of nurses with PhDs.

* The high ratio of nursing students to faculty members in Jordan Universities unveils the severe shortage of faculty members in Jordan and about 41.6% of the PhD holders were non-Jordanian nurses.

* The highest nursing turnover was reported for baccalaureate nurses which accounted for 35.9% followed by Associate degree nurses (30.7%), Master prepared nurses (30.3%) and midwives (19.8%).

Nursing excellence demands first class nurses and first class education and practice systems that invest and build on our basic building blocks in caring for people and revive them to fully shape the meaning and process of care giving as well as to strengthen our knowledge and competencies to ensure the highest level of quality and humane care for individuals, families and communities.

By educating nurses about the crucial issues related to the nursing workforce, education and practice it will give them the information essential to informed action. And by encouraging nurses to think critically about what is happening in nursing and the health care domain it will help them clarify their own views. Nurses must become vocal about the importance of their work, education, lifework, environment, career and quality of care. They must become more assertive in sharing their insights into the meaning and process of caregiving with the public and policy makers.

Summary of the Profiles of the Nursing Workforce in Jordan

Profile of Registered Nurses (BSN and diploma nurses).

* Registered nurses comprised the majority (45%) of the nursing workforce.
* They had a growth rate of 23.4% during the period of 2003-2007.
* Female RNs accounted for 61.7% of the RN workforce.
* They were mainly employed by MOH hospitals, private sectors and the RMS.
* They worked mainly in hospitals and they were considered as the backbone of the education sector.
* RNs: hospital bed ratio was 0.62 nurse to one hospital bed

Profile of Associate Degree Nurses:

* Associate degree (AD) nurses comprised about one-fourth of the nursing workforce.
* They had the highest growth rate of 73% over the period of 2003-2007.
* Female AD nurses accounted for 55% of the AD nursing workforce
* They were mainly working in hospitals and employed by MOH (hospitals and centers), RMS and the private sectors.
* AD: hospital bed ratio was 0.39 associate degree nurse to one hospital bed.

Profile of Midwives:

* Midwives comprised about less than a tenth of the nursing workforce.
* They had the slightest increase in its workforce during the period of 2003-2007.
* They were mainly employed by MOH hospitals and primary health centers.

Profile of Diploma Nurses:

* Diploma nurses comprised about one-tenth of the nursing workforce and one-fifth of the RNs nursing workforce.
* They graduated from three-year community college nursing programs. The diploma program was established by the Ministry of Health in 1954 and later by the Royal Medical Services in 1962.
* They were mainly employed by MOH hospitals.
* The number of diploma nurses wittnessed a sharp decline from 2003-2007 due to the termination of the program .
* Female diploma nurses comprised more than two-thirds of all diploma nurses.

Profile of Practical Nurses:

* Practical nurses comprised about one-fifth of the nursing workforce and the number of PN nurses witnessed a major decline from 2003-2007 due to the termination of the program.

* They were mainly employed by MOH health care centers and hospitals.

* Male PN nurses comprised about one-fourth of the PN nurses.

* PN: hospital bed ratio was 0.20 practical nurse to one hospital bed.

Chapter One

Introduction and Background

Introduction

The World Health Organization (WHO) report in 2006 emphasized the centrality of human resources for health for the effective operation of a country's health system (1). The report addressed the fact that the shortages of health care providers interferes with national and global efforts to achieve the internationally agreed health related development goals. The shortages are considered as the biggest obstacles in achieving the millennium development goals of improving the health and well-being of global population.

The main constraint to effective health service delivery worldwide is the shortage of nurses and midwives which leads to imbalances in the distribution of human resources for health care as well as inequalities in health care delivery and population outcomes (1,2). Nurses are the backbone of the health care system as they comprise the largest group of health care professionals, thus, any instability in the supply of nurses to meet the health care demands of the populations they serve is a serious threat to the quality of care provided to people (2, 3, 4, 5).

Shortages of health care professionals have a negative impact on the quality and productivity of health care services and leads to substitutions of persons lacking skills for performing critical interventions (6). Thus, the development of the nursing and midwifery services is a vital component of health care systems and health services development. According to the Eastern Mediterranean Region Organization (EMRO) of the World Health Organization, 10% of the countries in the EMRO region have developed their national plans and strategies for improving nursing and midwifery education and service delivery (3). The contribution of nurses to meet the Millennium Development Goals (MDGs) and deliver effective quality care has been recognized by the WHO (1, 3, 7).

Since human resources are the most valuable asset in Jordan, the focus should be directed toward the proper investment of health care professionals in the health care industry at the national level as well as at the regional and global levels. Crucial issues are to recognize the importance of achieving the goals of self-sufficiency in health workforce development and to enhance global excellence of health care services. Beyond these issues, there are the challenges of maintaining excellence and being innovative and responsive to the frequent changes in the health care industry such as the introduction of new technology.

Jordan, as in many other countries, is faced with a severe shortage in the nursing workforce (8, 9, 10).

Factors contributing to the nursing shortage problem in Jordan includes, but is not limited to, a nursing education system that has not increased female enrollment for more than 7 years; a low ratio of registered nurses (RNs) to the population; the high rate of population growth in the country; demographic changes; the increase in chronic illnesses in Jordan and negative workplace environments (8, 9, 11). Moreover, a growing shortage of nursing faculty members in Jordanian universities raises serious added concerns. Decision-makers in Jordan need to focus on strategic planning of nursing manpower in accordance with the new emerging challenges such as: the increased demand for health services, patients' needs, and the requirements for providing high quality health care services.

How many nurses are currently practicing in Jordan? How many registered, associate, diploma and practical nurses and midwives do we have? What is the ratio of male to female nurses in Jordan? What is the projected need for the nursing workforce by the year 2012? Do we have enough faculty members in Jordanian universities to educate and prepare nursing students? These are questions about workforce issues and they are all crucial for predicting and planning the supply of nurses, planning for future population health care needs, regulating entry to practice and strengthening the education and competencies of nurses.

This study of the 2007 nursing workforce in Jordan highlights the current key priority issues related to the nursing workforce and its shortages in Jordan. It also identifies the key trends and policy issues, the main challenges and potential solutions / interventions to the problems of the nursing workforce. The key priority issues and policies as well as imbalances of the nursing workforce in relation to gender, geographic, nursing graduates, educator/student ratio, supply / demand, public / private service sectors, national faculty members / foreign faculty members, PhD nurses / master prepared nurses and distributional/institutional health care sectors have been explored based on the findings of this study. Also, a Policy Interventions Framework has been developed to sum up the key policy issues and interventions from the nursing workforce study in Jordan.

Workforce planning is crucial for health care professionals as it helps in monitoring the indicators of the supply and demand of nursing staff and it helps in planning for future requirements (1, 3, 5, 8,). Workforce planning also provides an early warning system of where shortages may occur, provides a mechanism for early and effective interventions and it helps in identifying projection forecasting models of human resource needs to ensure the effective formation of policy decisions.

The Purposes of the Study

This study focuses on key trends, main challenges, key policy issues and potential solutions/interventions of the nursing workforce in Jordan. It is aimed at evaluating the existing nursing workforce in Jordan, examining trends in the nursing workforce, estimating the numbers of nurses with regard to qualifications, gender, and sectors of employment as well as estimating the targeted numbers of nurses for the coming five years.

The assessment of the nursing workforce and projected demand requires accurate statistics that include, but are not limited to, the total population and the number of beds in hospitals. In this study, nurses were surveyed according to their gender, qualifications, geographical regions, types of institutions, and places of work. A number of indicators and ratios were estimated, which included male nurses: female nurses, nurse: patient, nurse: bed, and nurse: population.

This is the second study that aims to strengthen the efforts to establish a comprehensive database about the nursing workforce in Jordan. The first study of the nursing workforce was conducted by the Jordanian Nursing Council (JNC) in 2003 (8). The results of the current study will help the nursing body and health care providers to make informed policy decisions on current and future key issues in nursing and will provide the opportunity to utilize efficiently and cost effectively the available and potential nursing resources. The study focuses on the key trends, main challenges and potential solutions/ intervention of the nursing workforce in Jordan.

Moreover, this study will help to analyze and estimate the current and future needs of nurses in relation to numbers, qualifications, and gender. This forecast will help in meeting the demands on the nursing services in the country at all levels in different sectors and regions. It is well known that the shortage of qualified nurses results in low quality health care provided to clients and patients (1, 3, 6, 7). Furthermore, the current study will shed light on the imbalances in the nursing workforce including the male/female nurse ratio. The study will also provide information regarding turnover rates. The report on the nursing workforce study in 2003 indicated that some health care institutions reported the nurses' turnover as high as 40% (8). Assessing the turnover rate will direct the education and health service sectors in setting strategic plans that would enhance the stability of manpower and minimize the turnover of nurses.

Background Information about the Health Care System and Nursing Workforce in Jordan

The Health Care System in Jordan:

Amongst the countries of the Arab Region, Jordan models the highest standard of quality in health care services in the entire region (3, 10, 12). Jordan is a Middle East country with an area of 91,000 square kilometers and a population of 5,723,000 (13). The adult male literacy rate was 4.3% as compared to 11.6% for females with an average of 7.9% at the country level. In 2007, the population growth rate was 2.2 and the average life expectancy was 73 years. The health infrastructure in Jordan has been improving rapidly over the last 10 years (3, 10, 12). The main health sectors in Jordan are: the Ministry of Health (MOH), the Royal Medical Services (RMS) which covers the military services, university affiliated hospitals, nongovernmental organizations (NGOs), and private hospitals, in addition to the nursing and health programs at the Ministry of Higher Education and Research .

According to the Ministry of Health statistics report in 2007, the number of hospitals in Jordan was 100 in 2007 as compared to 97 in 2003 (13). The number of hospital beds increased from 9,743 beds in 2003 to 10,929 in 2008. Regarding the distribution of health staff per population, the latest figures indicate a number of 26.7 physicians/10,000, and only 33.6 nursing personnel/10,000 population. These figures indicate a shortage in health care professionals especially nurses.

Information about Nursing in Jordan:

Nursing in Jordan has developed rapidly especially since the seventies (8, 9, 14). It has achieved a good status compared to other countries in the region. This development was supported by many factors, such as affiliating schools of nursing with universities; the emergence of baccalaureate programs which led to the preparation of nurses at the higher education level and the identification of entry level to nursing practice as well as the emergence of strong leadership (8, 9, 14). Parallel to this, many educational and health institutions have provided golden opportunities for nurses to seek their higher education or specializations in nursing outside the country. These achievements were pursued by the unity of committed nurses in the absence of a strong regulatory body prior to 2002. The perseverance of the group, the strong political leadership commitment and the support of the public led to the foundation of the Jordanian Nursing Council in 2002 with the solid support and commitment of Her Royal Highness Princess Muna Al Hussein, the shaker and mover of health and nursing issues at the national, regional and international levels.

According to the Ministry of Health statistics report in 2007, there were 8,593 Jordanian registered nurses (RNs) working inside and outside of Jordan (13). However, the first nursing workforce study in 2003 reported a number of 6,007 registered nurses (RNs) whereas the second nursing workforce study in 2007 reported a number of 7,842 RNs working in Jordan (8). Currently, there are 15 schools of nursing that graduate professional nurses with Bachelor of Science degrees in Nursing Science (BSN). Also, there are 27 schools which provide Associate Degrees in Nursing. In 2007, there were 1,591 nurses with bachelor degrees and 1,456 nurses with associate degrees. There are increasing numbers of bridging programs for diploma and associate degree nurses (ADs) as well as midwives. In general, the ADs programs are shallow medically-oriented programs. Not being limited to the BSN and ADs, there are two universities that provide Master degrees in Nursing Science (MSN); Jordan University (JU) and Jordan University of Science and Technology (JUST), and one national nursing doctoral program at JU.

Although nursing in Jordan has a well-structured educational system and one of the most efficient in the region, nurses still face many professional challenges. Nurses in Jordan, as in other countries, around the world, are faced with similar working conditions such as heavy workloads, conflicts with other health care professionals, limited clinical autonomy, non-supportive work environments, and feelings of inadequacy (8, 10, 14, 15, 16, 17). Previous studies revealed that these working conditions contribute to dissatisfaction, burnout, high rates of turnover and attrition among male and female nurses in Jordan (16, 17, 18).

The documents on strategic national nursing directions in Jordan and situational analysis on Jordanian nursing for 2006, reported that the nursing workforce in many institutions lack governance, authority, autonomy, job security, clinical ladders, cadres of specializations in nursing, gender imbalances and the support of others (8, 9, 14, 19, 20, 21, 22). Nurses also have unclear job descriptions and few have incentives in recognition of their expertise. Moreover, nurses are not well represented at the different leadership and decision making levels.

Over the past decades, WHO resolutions and the International Council of Nurses (ICN) recommendations have consistently called on governments to strengthen nursing and midwifery and provide for adequate and relevant regulation of nurses and nursing (2, 3, 4, 5, 19). The ICN published a number of papers on regulation such as the "Regulation: Towards 21st Century Models" which was the third in the ICN's series of major publications since 1985 (19). In addition, the ICN established the Observatory on Licensure and Registration and the regulator forum in 2005.

In an effort to empower and strengthen nursing practices and education, the JNC devised a strategy and action plan to improve both education and practice sectors through the certification of specializations in nursing; continuing education; lobbying for more vacancies for specialized nurses; setting general and specialty standards of practice; enhancing leadership; advising institutions to adopt clinical ladders; conducting quality educational training programs in some neglected areas such as mental health; conducting workshops, international conferences and seminars; and building capacity in leadership; research; and mentorship (9, 23).

The turnover rate is high among the majority of health care professionals, particularly the nurses. It was reported that the turnover rate was high in the Ministry of Health, university hospitals, and private hospitals (8).

Box 1: Nursing Education Programs in Jordan (15).

Facts on the Baccalaureate Nursing Program in Jordan:

The baccalaureate nursing program in Jordan is a four-year general nursing program and it is based on the American nursing education model. The BSN program covers both components of theory and clinical practice. Jordan has 15 nursing baccalaureate programs offered by 7 public universities and 8 private universities. The annual average number of BSN nurses graduating from these programs during the last 4 years was 1,270. The baccalaureate nursing programs also include the registered nurse (RN) completion program which is a two year bridging program for nurses with associate degrees or diplomas in nursing.

Facts on the Associate Degree Nursing Program in Jordan:

The two-year course of study for the Associate Degree in Nursing in Jordan is a program based on the American nursing education model. The ADs program covers both components of theory and clinical practice. Jordan has 27 associate programs in nursing offered by 9 public colleges and 18 private colleges. The annual average number of AD nurses graduating from these programs during the last 4 years was 1,346.

Facts on the Master Nursing Programs in Jordan:

The Master's program in nursing is a two-year graduate program offered by the University of Jordan, with two specialty programs in nursing, and Jordan University of Science and Technology with five specialty programs in nursing. The specialty programs in nursing include: nursing education, clinical nursing programs, nursing services administration, adult acute care, applied behavioral health analysis, maternal newborn nursing and community health nursing. The Master's program in nursing covers both components of theory and clinical practice and it includes the thesis and non-thesis options for graduate students. The annual average number of graduate students in Master's programs during the last four years was 57 students.

Facts on the Doctorate in Nursing Program in Jordan:

Jordan has one national doctorate nursing program offered by The University of Jordan and it was established in 2005-2006. Faculty members are recruited from all Jordanian universities as well as some international universities to teach in the program. Theory, practice and dissertation are all important components of the doctoral program. The intake of the program started with eight nurses in 2005-2006, nine in 2006-2007 and twelve graduate nurses in 2007-2008. Until 2008 Jordan had only three female professors in nursing and 13 associate professors in nursing (9 females, and 4 males).

Reference: Jordan Nursing Council, (2006). Nursing and Midwifery Status in the Middle East Report. JNC, Jordan

Methodology: Sample, Settings, and Data Collection

This study is a descriptive survey of the nursing workforce in Jordan. A special form was completed by nursing professionals under the leadership of the JNC and revised by a national taskforce committee in 2003 (8). The same form was distributed in 2007 to all health institutions including governmental, educational, private, and other related sectors. Examples of these sectors are MOH, RMS, private hospitals, university- affiliated hospitals, universities and community colleges, the Ministry of Education, the Ministry of Social Affairs, the JNC, the General Directorate of Civil Defense, and the Public Security Directorate. The form included information regarding the current numbers of nurses and midwives as classified by qualifications, gender, sectors of employment, and geographical locations. In addition, information was elicited about other personnel working in the nursing field (non-nursing). The estimated response rate of this study was 99%.

Data Analysis

Data analysis was guided by the aim and objectives of the study. Some data was obtained from the participating institutions; however, other data was obtained from the statistical reports of the MOH in 2007 (13). Data was entered and analyzed using Microsoft Excel datasheets. Descriptive statistics were used such as numbers, frequencies, percentages, and ratios.

2

Chapter Two

General key Issues

General Findings

Table 1 reveals that the total number of nursing personnel in 2007 was 17,431 with an increase of 22.3 % from 2003 (n=13,539 nurses). The total number included registered nurses (RNs) who have their higher degrees, baccalaureate degrees or diploma certificate, associate degree nurses (ADs), midwives (MW) and assistant/ practical nurses (PN).

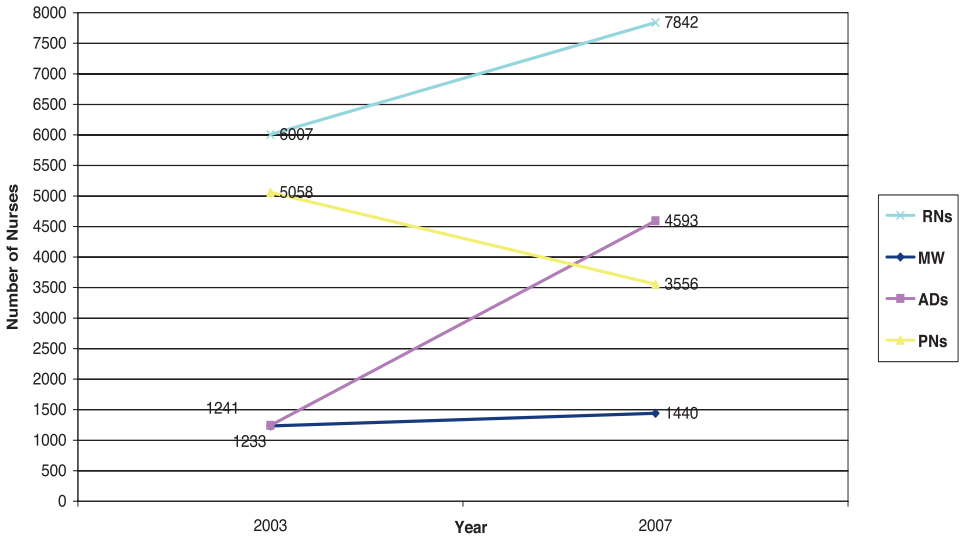
Table 1- Comparisons Between Numbers and Percentages of Nursing & Midwifery Workforce in 2003 and 2007

Year	Number of RNs	% RNs to the total number	Number of Midwives	% MW to the total number	Number of Associate nurses	% Associate to the total number	Number of Practical nurses	% PN to the total number	Total Number or Nursing workforce	% Nursing workforce
2003	6007	44.4%	1233	9.1%	1241	9.2%	5058	37.4%	13539	100.0%
2007	7842	45.0%	1440	8.3%	4593	26.3%	3556	20.4%	17431	100.0%
The differences (2007- 2003)	1835	0.6%	207	-0.8%	3352	17.2%	-1502	-17.0%	3892	0.0%
%The differences (2007-2003)	23.4%	-	14.4%	-	73.0%	-	-42.2%	-	22.3%	-

RNs comprised about 45% of the nursing workforce in Jordan in 2007 followed by AD nurses (26.3%), PNs (20.4%) and midwives (8.3%). Between 2003 and 2007, the number of RNs grew by only 23.1% from 2003. The total number of RNs was projected by the JNC to be 12,240 RNs in 2007 (8). A total of 7,842 RNs were working in Jordan in 2007 which comprises only 64% of the needed number of RNs (8).

Associate degree nurses witnessed a significant increase in the number of nurses (n=4,593 ADs) during the four year period of 2003-2007 that accounted for 73% compared to only a 23.7% increment in the number of RNs (n=7,842 RNs) and a modest increase in the number of midwives number (n=1,440 MW) which accounted for 14.4% over the same period of time. Another major decline was shown in the number of practical nurses (n=3,556 PNs) which went down about 42.2 % from 2003 to 2007 due to the termination of the practical nursing program in 1998. The same trend was detected for diploma nurses because of the termination of the diploma program in the RMS in 1998 which was replaced by the BSN program. The MOH diploma program was terminated in 2002 and replaced by the associate degree program in 2002. Figure 1 shows the trends of the nursing workforce in 2007 compared to 2003.

Figure 1 Numbers of the Different Categories of Nursing and midwifery in 2003 and 2007



Therefore, the negative balance of the number of PNs and diploma nurses was compensated by the increasing number of ADs during the period of 2003-2007.

Policy issues: The entry to practice in nursing is limited to two levels of education which includes associate and baccalaureate degrees in nursing. This policy, which is related to education and practice was recommended by the Board of the Jordanian Nursing Council and was approved by the Ministry of Higher Education in 2002 (24, 25).

Non-nurses accounted for 13.9% (n= 2,809) of the nursing workforce in nursing in Jordan. They comprised about 16.9% (n =1,593 non nursing employee) of those working in the health field in the MOH and 15.5% (n= 740 non-nursing employee) of those working in the private hospitals.

Sectors of Employment

In relation to the sectors of employment, as shown in (Table 2) , most nurses were employed by the MOH (n= 7,841, 45 %) followed by the private sector (n= 4,020, 23.1 %), military sector/ Royal Medical Services (n=3,340, 19.2%), university affiliated hospitals (n=1,157, 6.6%), public and private universities (n=422, 2.4 %), and private and public community colleges of nursing (n=196, 1.1 %).

Table 2- Numbers and Percentages of RNs, ADs, PNs and MW in the Different Sectors in 2007

Sector	RNs	% RNs in sector	ADs	%ADs in sector	PNs	%PNs in sector	MW	%MW in sector	No. of Nursing Workforce	% of Nursing Workforce
Private Hospitals	2116	52.6%	1140	28.4%	562	14.0%	202	5.0%	4020	23.1%
MOH	2447	31.2%	1652	21.1%	2694	34.4%	1048	13.4%	7841	45.0%
RMS	1534	45.9%	1447	43.3%	235	7.0%	124	3.7%	3340	19.2%
University Hospitals	884	76.4%	216	18.7%	39	3.4%	18	1.6%	1157	6.6%
Universities	420	99.5%	2	0.5%	0	0.0%	0	0.0%	422	2.4%
Colleges of Nursing	171	87.2%	12	6.1%	1	0.5%	12	6.1%	196	1.1%
Other institutions	270	59.3%	124	27.3%	25	5.5%	36	7.9%	455	2.6%
Total	**7842**	**45.0%**	**4593**	**26.3%**	**3556**	**20.4%**	**1440**	**8.3%**	**17431**	**100.0%**

Table 2 shows that about one-third of the nurses who worked in the MOH were RNs (n= 2,447, 31.2%) compared to 34.4% of PN (n=2,694) and only 21% of AD nurses (n=1,652). Midwives comprised about 13.4% (n= 1,048) of the total number of nursing workforce in the MOH. The vast majority of nursing workforce in university hospitals, were RNs (n= 884, 76.4%) and ADs (n= 216, 18.7%). RNs constituted about 46% of the nurses working in the RMS (n= 1,534) followed by AD nurses (n= 1,447, 43.3%). More than 50% of the nursing workforce working in private hospitals were RNs (n= 2,116) followed by AD nurses (n=1,140, % =28.4%). Table 3 shows the distribution of each category of the nursing workforce in the different sectors.

Table 3 - Numbers, Percentages and Nationalities of Each Category of Nursing Workforce in the Different Sectors in 2007

Sector	No of beds	No.of RNs				Total no. of RNs		Total no. of RNs	% RNs in sectors	No. of MW		Total no. of MW	% MW in sectors	No. of ADs				Total no. of ADs		Total no. of ADs	% ADs in sectors
		Male		Female		Male	Female			Jor	Non-Joe			Male		Female		Male	Female		
		Jor	Non-Jor	Jor	Non-Jor									Jor	Non-Jor	Jor	Non-Jor				
Private Hospitals	3528	902	16	948	250	918	1198	2116	27.0%	162	40	202	14.0%	524	3	601	12	527	613	1140	24.8%
MOH	4250	1030	0	1417	0	1030	1417	2447	31.2%	1048	0	1048	72.8%	652	0	999	1	652	1000	1652	36.0%
RMs	2131	446	0	1088	0	446	1088	1534	19.6%	124	0	124	8.6%	715	0	732	0	715	732	1447	31.5%
University Hospitals	1020	371	0	513	0	371	513	884	11.3%	18	0	18	1.3%	114	0	102	0	114	102	216	4.7%
Universities	0	113	3	242	62	116	304	420	5.4%	0	0	0	0.0%	0	0	2	0	0	2	2	0.0%
Collges of Nursing	0	67	0	104	0	67	104	171	2.2%	12	0	12	0.8%	4	0	8	0	4	8	12	0.3%
Other institutions	0	53	0	217	0	53	217	270	3.4%	36	0	36	2.5%	43	0	80	0	43	81	124	2.7%
Total	**10929**	**2982**	**19**	**4529**	**312**	**3001**	**4841**	**7842**	**100.0%**	**1400**	**40**	**1440**	**100.0%**	**2052**	**3**	**2524**	**13**	**2055**	**2538**	**4593**	**100.0%**
% of Nursing workforce	45.0%									8.3%				26.3%							
	% RNs to all Nursing workforce									%MW to all Nursing workforce				% ADs to all Nursing workforce							

Table 3 - Numbers, Percentages and Nationalities of Each Category of Nursing Workforce in the Different Sectors in 2007 Cont'd .2

Sector	No. of PNs				Total no.of PNs		Total no. of PNs	% PNs in sectors	Total no. nursing workforce	% of nursing workforce
	Male		Female		Male	Female				
	Jor	Non-Jor	Jor	Non-Jor						
Private Hospitals	235	5	305	17	240	322	562	15.8%	4020	23.1%
MOH	588	0	2105	1	588	2106	2694	75.8%	7841	45.0%
RMs	87	0	148	0	87	148	235	6.6%	3340	19.2%
University Hospitals	30	0	9	0	30	9	39	1.1%	1157	6.6%
Universities	0	0	0	0	0	0	0	0.0%	422	2.4%
Collges of Nursing	0	0	1	0	0	1	1	0.0%	196	1.1%
Other institutions	9	0	16	0	9	16	25	0.7%	455	2.6%
Total	**949**	**5**	**2584**	**18**	**954**	**2602**	**3556**	**100.0%**	**17431**	**100.0%**
% of Nursing workforce	20.4%									100.0%
	% PNs to all Nursing workforce									

The MOH employed around one-third of the registered nurses (n= 2,447, 31.2%) and associate degree nurses (n= 1,652, 36%) as well as three-quarters of the midwives (n= 1,048,72.8%) and practical nurses (n= 2,694,75.8%). The second main employer was the private sector followed by the RMS. The vast majority of midwives in Jordan worked in the MOH accounting for 72.8 % (n= 1,048) of all midwives in all sectors.

One of the most neglected sectors is the health care centers. The MOH alone had 1,107 health care centers which include comprehensive, secondary and primary health centers (13). The total number of RNs in the health care centers was 170 RN nurses which accounted for only 2.2% of all RNs (Table 4).

Table 4 - Numbers and Percentages of Nursing Workforce (RNs,MW,ADs,PNs) and Non Nursing (Tawjehi and 9th Grade) in the Different Sectors in 2007

Sector			Private Hospitals	MOH hospitals	Primary health centers in MOH	RMS	University Hospitals	Universities	Colleges of Nursing	Other institutions	Total	% Jordanian and non Jordanian
No. of PhD nurses	Male	Jor	2	0	0	0	1	29	1	1	34	22.8%
		Non-Jor	0	0	0	0	0	3	0	0	3	2.0%
	Female	Jor	3	0	0	0	1	43	2	4	53	35.6%
		Non-Jor	0	0	0	0	0	59	0	0	59	39.6%
Total no. of PhD nurses			5	0	0	0	2	134	3	5	149	
% Male and Female	Male		40.0%	0.0%	0.0%	0.0%	50.0%	23.9%	33.3%	20.0%	24.8%	
	Female		60.0%	0.0%	0.0%	0.0%	50.0%	76.1%	66.7%	80.0%	75.2%	
no. of MSN	Male	Jor	16	21	1	8	14	27	30	2	119	36.2%
		Non-Jor	1	0	0	0	0	0	0	0	1	0.3%
	Female	Jor	22	16	2	7	8	87	42	19	203	61.7%
		Non-Jor	3	0	0	0	0	3	0	0	6	1.8%
Total no. of MSN			42	37	3	15	22	117	72	21	329	
% Male and Female	Male		40.5%	56.8%	33.3%	53.3%	63.6%	23.1%	41.7%	9.5%	36.5%	
	Female		59.5%	43.2%	66.7%	46.7%	36.4%	76.9%	58.3%	90.5%	63.5%	
No. of BSN	Male	Jor	829	659	13	381	356	57	36	47	2378	41.4%
		Non-Jor	14	0	0	0	0	0	0	0	14	0.2%
	Female	Jor	785	644	39	801	504	112	59	179	3123	54.4%
		Non-Jor	223	0	0	0	0	0	0	0	223	3.9%
Total no. of BSN			1851	1303	52	1182	860	169	95	226	5738	
% Male and Female	Male		45.5%	50.6%	25.0%	32.2%	41.4%	33.7%	37.9%	20.8%	41.7%	
	Female		54.5%	49.4%	75.0%	67.8%	58.6%	66.3%	62.1%	79.2%	58.3%	
No. of 3 year Diploma	Male	Jor	55	320	16	57	0	0	0	3	451	27.7%
		Non-Jor	1	0	0	0	0	0	0	0	1	0.1%
	Female	Jor	138	617	99	280	0	0	1	15	1150	70.7%
		Non-Jor	24	0	0	0	0	0	0	0	24	1.5%
Total no. of 3 year diploma			218	937	115	337	0	0	1	18	1626	
% Male and Female	Male		25.7%	34.2%	13.9%	16.9%	0.0%	0.0%	0.0%	16.7%	27.8%	
	Female		74.3%	65.8%	86.1%	83.1%	0.0%	0.0%	100.0%	83.3%	72.2%	

Table 4 - Numbers and Percentages of Nursing Workforce (RNs,MW,ADs,PNs) and Non Nursing (Tawjehi and 9th Grade) in the Different Sctors in 2007 Cont'd. 2

Sector	Total no. of RNs			Total no. of RNs Male and Female		Total no. of RNs	% Male and Female		No. of Msc in MW		No. of Bsc in MW		No. of 3 year Diploma in MW		No. of Diploma in MW		Total no. of MW Jordanian to non Jordanian		Total no. of MW
	Male	Female		Male	Female		Male	Female	Female		Female		Female		Female		Female		
	Jor	Jor	Non-Jor						Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	
Private Hospitals	902	948	250	918	1198	2116	43.4%	56.6%	1	0	38	16	69	9	54	15	162	40	202
MOH hospitals	1000	1277	0	1000	1277	2277	43.9%	56.1%	1	0	24	0	196	0	294	0	515	0	515
Primary health centers in MOH	30	140	0	30	140	170	17.6%	82.4%	0	0	8	0	516	0	9	0	533	0	533
RMS	446	1088	0	446	1088	1534	29.1%	70.9%	0	0	36	0	67	0	21	0	124	0	124
University Hospitals	371	513	0	371	513	884	42.0%	58.0%	0	0	18	0	0	0	0	0	18	0	18
Universities	113	242	62	116	304	420	27.6%	72.4%	0	0	0	0	0	0	0	0	0	0	0
Colleges of Nursing	67	104	0	67	104	171	39.2%	60.8%	0	0	9	0	3	0	0	0	12	0	12
Other institutions	53	217	0	53	217	270	19.6%	80.4%	0	0	3	0	33	0	0	0	36	0	36
Total	2982	4529	312	3001	4841	7842	38.3%	61.7%	2	0	136	16	881	9	381	15	1400	40	1440
% Jordanian and non Jordanian	38.0%	57.8%	4.0%														97.2%	2.8%	

Table 4 - Numbers and Percentages of Nursing Workforce (RNs,MW,ADs,PNs) and Non Nursing (Tawjehi and 9th Grade) in the Different Sctors in 2007 Cont'd.3

Sector			Private Hospitals	MOH hospitals	Primary health centers in MOH	RMS	University Hospitals	Universities	Colleges of Nursing	Other institutions	Total	% Jordanian to non Jordanian
No. of ADs	Male	Jor	524	578	74	715	114	0	4	43	2052	80.9%
		Non-Jor	3	0	0	0	0	0	0	0	3	0.1%
	Female	Jor	601	835	164	732	102	2	8	80	2524	55.0%
		Non-Jor	12	1	0	0	0	0	0	0	13	0.3%
Total Male and Female		Male	527	578	74	715	114	0	4	43	2055	
		Female	613	836	164	732	102	2	8	81	2538	
Total no. of Ads			1140	1414	238	1447	216	2	12	124	4593	
% Male and Female		Male	46.2%	40.9%	31.1%	49.4%	52.8%	0.0%	33.3%	34.7%	44.7%	
		Female	53.8%	59.1%	68.9%	50.6%	47.2%	100.0%	66.7%	65.3%	55.3%	
No. of PNs	Male	Jor	235	380	208	87	30	0	0	9	949	26.7%
		Non-Jor	5	0	0	0	0	0	0	0	5	0.1%
	Female	Jor	305	915	1190	148	9	0	1	16	2584	72.7%
		Non-Jor	17	1	0	0	0	0	0	0	18	0.5%
Total Male to Female		Male	240	380	208	87	30	0	0	9	954	
		Female	322	916	1190	148	9	0	1	16	2602	
Total no. of PNs			562	1296	1398	235	39	0	1	25	3556	
% Male and Female		Male	42.7%	29.3%	14.9%	37.0%	76.9%	0.0%	0.0%	36.0%	26.8%	
		Female	57.3%	70.7%	85.1%	63.0%	23.1%	0.0%	100.0%	64.0%	73.2%	
No. of Tawjehi	Male	Jor	185	20	166	1	12	0	0	199	583	27.5%
		Non-Jor	1	0	0	0	0	0	0	0	1	0.0%
	Female	Jor	445	55	812	0	107	0	0	115	1534	72.3%
		Non-Jor	5	0	0	0	0	0	0	0	5	0.2%
Total no. of Tawjehi			636	75	978	1	119	0	0	314	2123	
% Male and Female		Male	29.2%	26.7%	17.0%	100.0%	10.1%	0.0%	0.0%	63.4%	27.5%	
		Female	70.8%	73.3%	83.0%	0.0%	89.9%	0.0%	0.0%	36.6%	72.5%	
No. of 9th grade	Male	Jor	37	5	86	0	9	0	0	0	137	20.0%
		Non-Jor	0	0	0	0	0	0	0	0	0	0.0%
	Female	Jor	58	36	413	0	32	0	0	1	540	78.7%
		Non-Jor	9	0	0	0	0	0	0	0	9	1.3%
Total no. of 9th grade			104	41	499	0	41	0	0	1	686	
% Male and Female		Male	35.6%	12.2%	17.2%	0.0%	22.0%	0.0%	0.0%	0.0%	20.0%	
		Female	64.4%	87.8%	82.8%	0.0%	78.0%	0.0%	0.0%	100.0%	80.0%	

There were only 52 BSN nurses and 3 master prepared nurses working in health care centers. Midwives working in health care centers comprised about 37% (n=533 MW) of all midwives in Jordan while only 5.2 % (n= 238) of all AD nurses were working in health care centers. The majority of nurses who worked in the health care centers were PNs (n=1,398) which accounted for 40.1% of all PNs in the country.

Another problem of the service delivery in health care centers in Jordan was the high numbers of non-qualified personnel (non-nurses) working in this important sector. There were 978 graduates from the 12th grade in addition to 499 graduates from the 9th grade working in health care centers. However, when taking into consideration all of the workforce in the nursing area, i.e. after including non-nursing personnel who graduated from the12th grade and 9th grade school programs, the percentage of RNs dropped down about 5-10% in the following sectors: private hospitals (44.5%), MOH hospitals and health centers (25.9%) and university affiliated hospitals (67.1%). No differences in the percentage were detected in the private and public community colleges of nursing and the RMS after including the students from the school programs.

This might reflect the quality gap in the heath care sector in relation to prevention, primary, secondary and comprehensive health care services in critical areas of increasing chronic illnesses in Jordan, including hypertension, diabetes, and obesity.Non-nurses lack the knowledge and skills to deal with patients and lack the capabilities to contribute to the functions and goals of the health care centers.

Regional Distribution

As for the regional distribution of RNs, the majority of RNs were working in the middle region of Jordan (n=5,516, 70.4%) compared to only to 21.4% (n=1,679) of nurses in the north and only 8.2% (n=641) in the south (Table 5).

Table 5 - Numbers and Percentages of RNs Workforce in the Different Regions in 2007

Regions	Population *	%population in regions	Targeted number of RNs needed acorrding the ratio 20 RNs : 10000pupulation**	Actual umber of RNs in Jordan 2007	Actual percentage of RNs in 3 regions 2007	Actual ratio of RNs :10000 pupulation in 2007	The differece of the targeted and actual numbers of RNs	The Percentage of needed RNs in the 3 regions
Middle	3599700	62.9%	7199.4	5516	70.4%	15.32	-1683.4	46.6%
North	1591000	27.8%	3182	1679	21.4%	10.55	-1503	41.6%
South	532300	9.3%	1064.6	641	8.2%	12.04	-423.6	11.7%
Total	**5723000**	**100.0%**	**11446**	**7836*** **	**100.0%**	**13.69**	**-3610**	**100.0%**

*Department of Statistics (DOS), The Hashemite Kingdom of Jordan. DOS, Jordan.

** According to the JNC ratio of RNs : population (1 RN:10,000 population).

***Five RNs were excluded.

Data revealed severe shortages of RNs in the middle and northern regions which accounted for more than 40%. Around 63% of the Jordanian population live in the middle region. Data showed considerable variation between the needed number of RNs and the actual available number of RNs in the three regions where the middle region reported the highest shortage of RNs. The middle region had the highest number of RNs (n=5516, 70.4%) of all RNs in the country. Jordanian nurses prefer to work in the middle region, specifically in the city of Amman, the main host of private and public hospitals as well as jobs and career opportunities.

Nurses to Beds Ratio in Hospitals

Table 6 reflects the ratio of nurse: hospital beds in Jordan in 2007-2008. In 2007, Jordan had 10,929 beds in all hospitals (private, public, military and education sectors). The total ratio of nurses to hospital beds accounted for a ratio of 1.2 nurses to one hospital bed in 2007.

Table 6 -Ratio of Nurses to One Hospital Bed in the Different Sectors in Jordan in 2007

Sector	No. of bed	%to bed	No. of RNs	Ratio of RNs to bed	No. of ADs	Ratio of ADs to bed	No. of PNs	Ratio of PNs to bed	Total no.of nursing workforce	Total ratio of nurses workforce to one hospital bed
Private Hospitals	3528	32.3%	2116	0.60	1140	0.32	562	0.16	3818	1.08
MOH Hospitals	4250	38.9%	2277	0.54	1414	0.33	1296	0.30	4987	1.17
RMS	2131	19.5%	1534	0.72	1447	0.68	235	0.11	3216	1.51
University Hospitals	1020	9.3%	884	0.87	216	0.21	39	0.04	1139	1.12
Total	**10929**	**100.0%**	**6811**	**0.62**	**4217**	**0.39**	**2132**	**0.20**	**13160**	**1.20**

Overall, the RMS reported the highest ratio of nurses to hospital beds which accounted for a ratio of 1.51:1 followed by MOH hospitals (1.17:1), university hospitals (1.12:1) and private hospitals (1.08:1). The RNs reported the highest ratio of nurses to hospital beds which was 0.62:1 followed by AD and PN which accounted for 0.39:1 and 0.20:1 respectively. The highest ratios of RNs to hospitals beds were reported by university hospitals (0.87:1) and RMS hospitals (0.72:1) while the lowest ratios were reported by the MOH hospitals (0.54:1) as well as the private hospitals (0.60:1). The RMS hospitals reported the highest ratio of AD nurses to hospital beds which accounted for (0.68:1) compared to about (0.3:1) for the private hospitals and public hospitals. The PNs in the MOH hospitals had the highest ratio of nurses to hospital beds in the MOH hospitals compared to other hospitals.

3

Chapter Three

Profiles of the Nursing Workforce in Jordan

Profile of Registered Nurses

Box 2

Profile of Registered Nurses

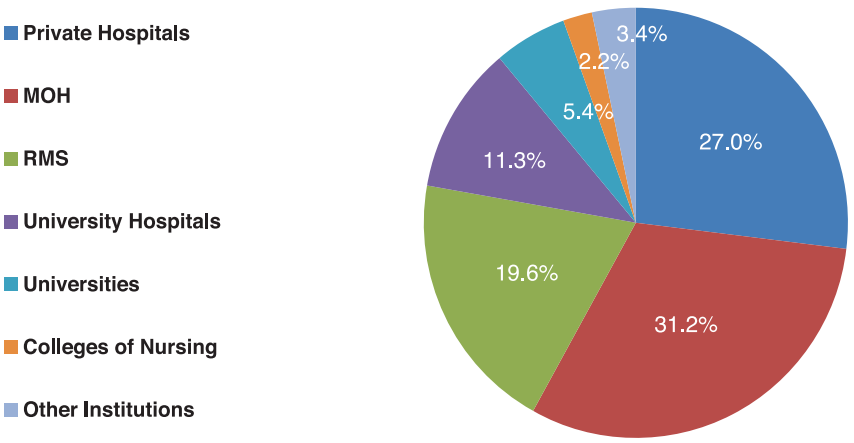
* Registered nurses comprised the majority (45%) of the nursing workforce.
* They had a growth rate of 23.4% during the period of 2003-2007.
* Female RNs accounted for 61.7% of the RN workforce.
* They were mainly employed by MOH hospitals, private sectors and the RMS.
* They worked mainly in hospitals.
* They are considered as the backbone of the education sector.
* RNs: hospital bed ratio was 0.62 nurse to one hospital bed.

The RNs includes BSN and diploma nurses. RNs comprised about 45% of all nurses in Jordan (n= 7,842 RNs) in 2007 compared to 44.4% in 2003, with an increase of only 0.6% of all nurses during 2003-2007. As mentioned before, when considering all those working in the nursing sector including non-nurses (9 and 12 years of schooling), the RNs percentage declined to 38.7 % (Table 1).

Table 2 shows that RNs comprised the majority 76.4% (n=884) of practicing nurses employed by university affiliated hospitals, followed by private hospitals (n=2,116, 52.6%), the RMS (n=1,534, 45.9%) and the MOH hospitals and primary health care centers (n=2,447, 31.2%). As expected, the vast majority of nurses in the education sector were RNs which accounted for 99.5% in the private and public universities and 87.2% in the colleges of nursing as shown in Table 2.

Pie chart 1 shows that the main employer of RNs were the MOH hospitals and centers (n= 2,447, 31.2%) and private hospitals (n= 2,116, 27%). The RMS hospitals employed about one-fifth of RNs (n=1,534) and only 11.3% of RNs were employed by university affiliated hospitals (n=884).

Piechart 1 Percentages of Registered Nurses in the Different Health Sectors in 2007



As shown in Table 7, the majority of RNs were female nurses (n=4,841, 61.7%) with a majority of RNs working in hospitals (n=6,811, 86.9%). The education sector employed 7.6% (n=591 RNs) of RNs distributed between universities and colleges of nursing which accounted for 5.4% (n= 420) and 2.2% (n=171) of the RNs, respectively.

Table 7 -Distribution of Qualifications, Gender and Nationalities of RNs Workforce in the Different Sectors in 2007

% RNs qualifications		% Jordanian and Non-Jordanian		Total		Other institutions		Colleges of Nursing		Universities		University Hospitals		RMS		MOH primary health		MOH Hospitals		Private Hospitals		Sector		
PHD	22.8%	34		1		1		29		1		0		0		0		0		2		Jor		No. of Phd
	2.0%	3		0		0		3		0		0		0		0		0		0		Non-Jor	Male	
	35.6%	53		4		2		43		1		0		0		0		0		3		Jor		
	39.6%	59		0		0		59		0		0		0		0		0		0		Non-Jor	Female	
	1.9%	149		5		3		134		2		0		0		0		0		5		Total no.of PhD		
-	24.8%	-		20.0%		33.3%		23.9%		50.0%		0.0%		0.0%		0.0%		0.0%		40.0%		Male		% of Phd Male and Female
	75.2%			80.0%		66.7%		76.1%		50.0%		0.0%		0.0%		0.0%		0.0%		60.0%		Female		
	22.8%			20.0%		33.3%		21.6%		50.0%		0.0%		0.0%		0.0%		0.0%		40.0%		Jor	Male	% PhD
	2.0%			0.0%		0.0%		2.2%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		Non-Jor		
	35.6%			80.0%		66.7%		32.1%		50.0%		0.0%		0.0%		0.0%		0.0%		60.0%		Jor	Female	
	39.6%			0.0%		0.0%		44.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		Non-Jor		
	58.4%			100.0%		100.0%		53.7%		100.0%		0.0%		0.0%		0.0%		0.0%		100.0%		Jor		% of PhD Jordanian and non Jordanian
	41.6%			0.0%		0.0%		46.3%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		Non-Jor		
	100.0%			3.4%		2.0%		89.9%		1.3%		0.0%		0.0%		0.0%		0.0%		3.4%		% PHD in sectors		
MSN	36.2%	119		2		30		27		14		8		1		2		21		16		Jor		No.of MSN
	0.3%	1		0		0		0		0		0		0		0		0		1		Non-Jor	Male	
	61.7%	203		19		42		87		8		7		2		16		22		22		Jor	Female	
	1.8%	6		0		0		3		0		0		0		0		0		3		Non-Jor		
	4.2%	329		21		72		117		22		15		3		37		42		Total no.of MSN				
-	36.5%	-		9.5%		41.7%		23.1%		63.6%		53.3%		33.3%		56.8%		40.5%		Male		% of MSN Male and Female		
	63.5%			90.5%		58.3%		76.9%		36.4%		46.7%		66.7%		43.2%		59.5%		Female				
	36.2%			9.5%		41.7%		23.1%		63.6%		53.3%		33.3%		56.8%		38.1%		Jor	Male	% MSN		
	0.3%			0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		2.4%		Non-Jor				
	61.7%			90.5%		58.3%		74.4%		36.4%		46.7%		66.7%		43.2%		52.4%		Jor	Female			
	1.8%			0.0%		0.0%		2.6%		0.0%		0.0%		0.0%		0.0%		7.1%		Non-Jor				
	97.9%			100.0%		100.0%		97.4%		100.0%		100.0%		100.0%		100.0%		90.5%		Jor		% of MSN Jordanian and non Jordanian		
	2.1%			0.0%		0.0%		2.6%		0.0%		0.0%		0.0%		0.0%		9.5%		Non-Jor				
	100.0%			6.4%		21.9%		35.6%		6.7%		4.6%		0.9%		11.2%		12.8%		% MSN in sectors				
BSN	41.4%	2378		47		36		57		356		381		13		659		829		Jor	Male	No. of BSN		
	0.2%	14		0		0		0		0		0		0		0		14		Non-Jor				
	54.4%	3123		179		59		112		504		801		39		644		785		Jor	Female			
	3.9%	223		0		0		0		0		0		0		0		223		Non-Jor				
	73.2%	5738		226		96		169		860		1182		52		1303		1851		Total no. of BSN				
-	41.7%	-		20.8%		37.9%		33.7%		41.4%		32.2%		25.0%		50.6%		45.5%		Male		%of BSN Male and Female		
	58.3%			79.2%		62.1%		66.3%		58.6%		67.8%		75.0%		49.4%		54.5%		Female				
	41.4%			20.8%		37.9%		33.7%		41.4%		32.2%		25.0%		50.6%		44.8%		Jor	Male	% BSN		
	0.2%			0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.8%		Non-Jor				
	54.4%			79.2%		62.1%		66.3%		58.6%		67.8%		75.0%		49.4%		42.4%		Jor	Female			
	3.9%			0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		12.0%		Non-Jor				
	95.9%			100.0%		100.0%		100.0%		100.0%		100.0%		100.0%		100.0%		87.2%		Jor		%of BSN Jordanian and non Jordanian		
	4.1%			0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		12.8%		Non-Jor				
	100.0%			3.9%		1.7%		2.9%		15.0%		20.6%		0.9%		22.7%		32.3%		% BSN in sectors				

Table 7 - Distribution of Qualifications, Gender and Nationalities of RNs Workforce in the Different Sectors in 2007 Cont'd.2

Sector	No. of 3 Year diploma				Total no. of 3 Year diploma	% of 3 Year diploma Male and Female		%3 Year diploma				% of 3 year diploma Jordanian and non Jordanian		% 3Year diploma in sectors	Total no. of RNs workforce				Total no. of RNs male and female		Total no. of RNs workforce	% of RNs male and female		%of RNs Jordanian and non Jordanian		% RNs in sectors
	Male		Female					Male		Female					Male		Female									
	Jor	Non-Jor	Jor	Non-Jor		Male	Female	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor		Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female	Jor	Non-Jor	
Private Hospitals	55	1	138	24	218	25.7%	74.3%	25.2%	0.5%	63.3%	11.0%	88.5%	11.5%	13.4%	902	16	948	250	918	1198	2116	43.4%	56.6%	87.4%	12.6%	27.0%
MOH Hospitals	320	0	617	0	937	34.2%	65.8%	34.2%	0.0%	65.8%	0.0%	100.0%	0.0%	57.6%	1000	0	1277	0	1000	1277	2277	43.9%	56.1%	100.0%	0.0%	29.0%
MOH primary health	16	0	99	0	115	13.9%	86.1%	13.9%	0.0%	86.1%	0.0%	100.0%	0.0%	7.1%	30	0	140	0	30	140	170	17.6%	82.4%	100.0%	0.0%	2.2%
RMS	57	0	280	0	337	16.9%	83.1%	16.9%	0.0%	83.1%	0.0%	100.0%	0.0%	20.7%	446	0	1088	0	446	1088	1534	29.1%	70.9%	100.0%	0.0%	19.6%
University Hospitals	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	371	0	513	0	371	513	884	42.0%	58.0%	100.0%	0.0%	11.3%
Universities	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	113	3	242	62	116	304	420	27.6%	72.4%	84.5%	15.5%	5.4%
Colleges of Nursing	0	0	1	0	1	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.1%	67	0	104	0	67	104	171	39.2%	60.8%	100.0%	0.0%	2.2%
Other institutions	3	0	15	0	18	16.7%	83.3%	16.7%	0.0%	83.3%	0.0%	100.0%	0.0%	1.1%	53	0	217	0	53	217	270	19.6%	80.4%	100.0%	0.0%	3.4%
Total	**451**	**1**	**1150**	**24**	**1626**	**27.8%**	**72.2%**	**27.7%**	**0.1%**	**70.7%**	**1.5%**	**98.5%**	**1.5%**	**100.0%**	**2982**	**19**	**4529**	**312**	**3001**	**4841**	**7842**	**38.3%**	**61.7%**	**95.8%**	**4.2%**	**100.0%**
% Jordanian and non Jordanian	**27.7%**	**0.1%**	**70.7%**	**1.5%**	-										**38.0%**	**0.2%**	**57.8%**	**4.0%**	-							
%RNs qualifications	3 Year diploma				**20.7%**	--																				

The growth rate of the female RNs workforce during the period of 2003-2007 was 55.5% with an increment of 1,031 females RNs over and above the number of female nurses in 2003 compared to a growth rate of 44.5% male RNs with an increment of 827 male RNs over the same period of 2003-2007 (Table 8).

A similar trend was found with the growth rate of BS nurses as they comprised the vast majority of the RNs. However, the percentage of female nurses with baccalaureate degrees declined around 1.3% in 2007 from 2003 as we noticed an increasing number of male nurses at the baccalaureate level. The number of foreign nurses who were mainly female, increased from 224 to 363 during the period of 2003-2007. The slight increase in the number of foreign RNs was due to the fact that Jordanian female RNs were not available. Out of all RNs who worked in 2007, a small number of foreign RNs were found with baccalaureate degrees (n=237, 4%) and a few were found with diplomas (n=25, 1.6 %).

The majority of RNs held a baccalaureate degree (n=5,738, 73.2%) followed by diploma certificate (n=1,626, 20.7%), a master degree (n=329, 4.2%) and a doctorate degree (n=149, 1.9%) as shown in (Table 7).

Female nurses also comprised the vast majority of PhD holders (n=112, 75.2%), diploma nurses (n=1626, 72.2%) and higher diploma (n=50, 72.5 %). In addition, female nurses comprised about two-thirds (n=209) of RNs with master degrees. As for the education and employer, as expected around 93.3% of the PhD holders were working in the universities (n= 139) leaving few of them working in other settings like hospitals (n=7, 4.7 %) as shown in Table 7. The number of RNs with master degrees showed better distribution in the different sectors and the education sectors. Universities and colleges of nurses also reported the highest number of RNs with master degrees (n=198, 57.5%). The largest employer of baccalaureate nurses were the private hospitals (n=1,851, 32.3%) followed by the MOH hospitals (n=1,303, 22.7%), the RMS hospitals (n=1,182, 20.9%) and university affiliated hospitals (n= 859, 15.2%).

Nurses with diploma degrees mainly worked in the MOH hospitals (n=937, 57.6%) followed by the RMS (n=337, 20.7%), private hospitals (n=218, 13.4%) and health centers at the MOH (n=115, 7.1%).

Table 8 - Comparisons Between Qualifications and Gender of RNs in 2003 and 2007

Year		Total no. of nurses in 2003*	% of RNs in 2003	% of RNs to Nursing workforce in 2003	Total no. of nurses in 2007	% of RNs in 2007	% of RNs to Nursing workforce in 2007	The difference between 2003-2007	% of the difference between 2003-2007	Total Graduated RNs 2003/2004-2007/2008
No. of PhD	Male	19			37			18		
	Female	30			112			82		
Total no. of PhD		49	0.8%	0.4%	149	1.9%	0.9%	100	67.1%	
% of PhD male and female	Male	38.8%			24.8%			18.0%		
	Female	61.2%			75.2%			82.0%		
No. of MSN	Male	95			120			25		96
	Female	151			209			58		130
Total no. of MSN		246	4.1%	1.8%	329	4.2%	1.9%	83	25.2%	226
% of MSN male and female	Male	38.6%			36.5%			30.1%		42.5%
	Female	61.4%			63.5%			69.9%		57.5%
No. of BSN	Male	1323			2392			1069		5671
	Female	1951			3346			1395		
Total no. of BSN		3274	54.7%	24.2%	5738	73.2%	32.9%	2464	42.9%	
%of BSN male and female	Male	40.4%			41.7%			43.4%		
	Female	59.6%			58.3%			56.6%		
No. of 3 year diploma	Male	737			452			-285		
	Female	1678			1174			-504		
Total no. of 3 year diploma		2415	40.4%	17.9%	1626	20.7%	9.3%	-789	-48.5%	
% of 3 year diploma male and female	Male	30.5%			27.8%			36.1%		
	Female	69.5%			72.2%			63.9%		
Total no. of RNs	Male	2174			3001			827		
	Female	3810			4841			1031		
Total no. of RNs		5984	100.0%	44.3%	7842	100.0%	45.0%	1858	23.7%	5671**
% of RNs male and female	Male	36.3%			38.3%			44.5%		
	Female	63.7%			61.7%			55.5%		

* BSN nurses who graduted from 2003/2004-2006/2007

** (23) RNs with unknown qualifications are not included in the total no. of RNs

Profile of Associate Degree Nurses

Box 3

Profile of Associate Degree Nurses:

* Associate degree nurses comprised about one-fourth of the nursing workforce.
* They had the highest growth rate of 73% over the period of 2003-2007.
* Female AD nurses accounted for 55% of the AD nursing workforce.
* They were mainly employed by the MOH (hospitals and centers), the RMS and the private sector.
* They worked mainly in hospitals.
* AD: hospital bed ratio was 0.39 associate degree nurse to one hospital bed.

AD nurses comprised about one-fourth of the nursing workforce (n=4,593, 26.3%) in Jordan. The AD nurses reported the highest growth rate from 2003-2007 which accounted for 73% with an increase of 3,352 extra nurses as shown in Table 1. The number of AD nurses grew about four times during the period of 2003-2007.

This is due to the opening of new associate degree programs against the proposal of the JNC to limit or freeze the programs. Associate degree programs mainly follow the medical model with very few qualified nursing faculty members. Some of the graduates of this program are already unemployed.

As shown in Table 9, females ADs had the lion's share of the growth rate among all nurses in Jordan as they grew about 6 times since 2003.

Table 9 - Comparisons Between Qualifications and Gender of ADs, PNs and MW in 2003 and 2007

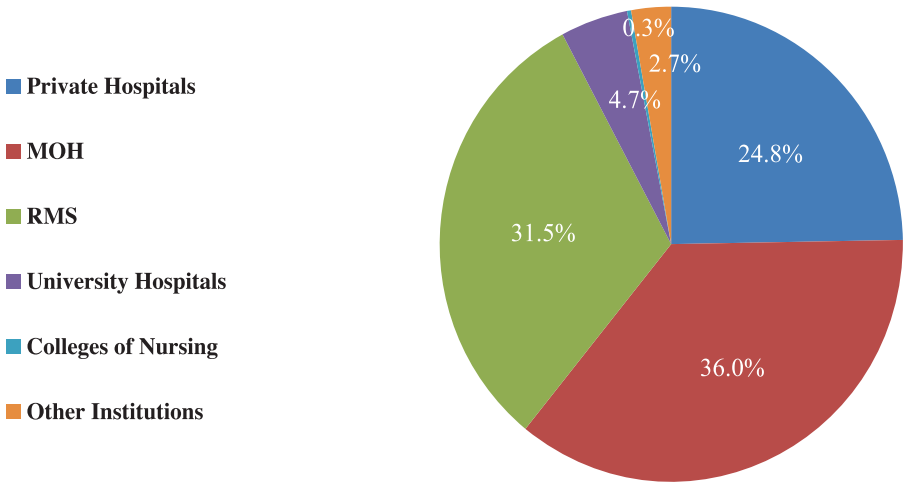
Year	No. of ADs		Total no. of ADs	% of Ads male and female		No. of PNs		Total no. of PNs	% of PNs male and female		No. of MW	Total no. of ADs,PNs and MW
	Male	Female		Male	Female	Male	Female		Male	Female		
Total no. of nursing workforce in 2003*	846	395	1241	68.2%	31.8%	2674	2384	5058	52.9%	47.1%	1233	7532
% of nursing workforce in 2003	–		9.2%	–				37.4%	–		9.1%	55.70%
Total no. of nursing workforce in 2007	2055	2538	4593	44.7%	55.3%	954	2602	3556	26.8%	73.2%	1440	9589
% of nursing workforce in 2007	–		26.3%	–				20.4%	–		8.3%	55.00%
The difference between 2003-2007	1209	2143	3352	36.1%	63.9%	-1720	218	-1502	114.5%	-14.5%	207	2057
% of the different between 2003-2007	–		73.0%	–				-42.2%	–		14.4%	45.12%
Total graduated nursing workforce 2003-2007	2319	3065	5384	43.1%	56.9%	–		–			562	5946

* Nursing workforce:ADs, PNs and MW

The females percentage increased from 31.8% (n=395) in 2003 to 55.3% (n=2,538) in 2007. Although males ADs grew about four times during the period of 2003-2007, the percentage of males ADs decreased to 44.7% in 2007 from a percentage of 68.2% in 2003.

The largest employers of the AD nurses were the MOH hospitals and centers (n=1,652,36%) and the RMS (n=1,447,31.5%) followed by private hospitals (n=1,140, 24.8%) as shown in the Pie Chart 2. Thus, the vast majority of AD nurses worked in hospitals (n= 4,186, 91.1%) and very few were employed by the education sector (n=14).

Piechart 2 Percentages of Associate Degree Nurses in the Different Health Sectors in 2007



The total ratio of AD nurses to hospital beds in Jordan was 0.39 associate degree nurse to one hospital bed, lower than that reported for RN nurses to hospital beds (Table 6).

The RMS reported the highest ratio of AD nurses to hospital beds which accounted for 0.68:1 followed by a ratio of 0.3:1 for both the MOH and private hospitals. University hospitals reported the lowest ratio of 0.21 AD nurses to one hospital bed. AD nurses reported a closer ratio to RN in the RMS (n=1,447, 43.3%) as shown in Table 2. AD nurses comprised more than one fourth of the total nurses in the private hospitals (n=1,140, 28.4%) and one-fifth of the total nurses in the MOH hospitals and centers (n=1,652, 21%) and university hospitals (n=216, 18.7%). Table 10 shows the profile of the AD nurses in Jordan.

Table 10 - Profile of Associate Degree Nurses in Jordan

Sector	No. of ADs			Total male and female		Total no. ADs	% of male and female		% of Male and female Jordanian and non Jordanian				% Jordanian and non Jordanian		% of ADs in sectors
	Male		Female	Male	Female		Male	Female	Male		Female		Jor	Non-Jor	
	Jor	Non-Jor	Jor						Jor	Non-Jor	Jor	Non-Jor			
Private Hospitals	524	3	601	527	613	1140	46.2%	53.8%	46.0%	0.3%	52.7%	1.1%	98.7%	1.3%	24.8%
MOH Hospitals	578	0	835	578	836	1414	40.9%	59.1%	40.9%	0.0%	59.1%	0.1%	99.9%	0.1%	30.8%
MOH Primary Health	74	0	164	74	164	238	31.1%	68.9%	31.1%	0.0%	68.9%	0.0%	100.0%	0.0%	5.2%
RMS	715	0	732	715	732	1447	49.4%	50.6%	49.4%	0.0%	50.6%	0.0%	100.0%	0.0%	31.5%
University Hospitals	114	0	102	114	102	216	52.8%	47.2%	52.8%	0.0%	47.2%	0.0%	100.0%	0.0%	4.7%
Universities	0	0	2	0	2	2	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%
Colleges of Nursing	4	0	8	4	8	12	33.3%	66.7%	33.3%	0.0%	66.7%	0.0%	100.0%	0.0%	0.3%
Other Institutions	43	0	80	43	81	124	34.7%	65.3%	34.7%	0.0%	64.5%	0.0%	99.2%	0.0%	2.7%
Total	2052	3	2524	2055	2538	4593	44.7%	55.3%	44.7%	0.1%	55.0%	0.3%	99.6%	0.3%	100.0%

Profile of Midwives

Box 4

Profile of Midwives:

* Midwives comprised about less than a tenth of the nursing workforce.

* They had the slightest increase in its workforce during the period of 2003-2007.

* They were mainly employed by the MOH hospitals and primary health centers.

* Midwifery is only a female profession.

Midwives comprised about 8.3% (n =1,440) of the entire nursing workforce in Jordan in 2007 as they reported around a 1% decrease of its workforce since 2003. Therefore, they reported the lowest percentage of growth among their fellow nurses which accounted for only 14.4% from 2003-2007. Although there was a slight increase in the number of MW from 2003 to 2007, the percentage of MW to the nursing workforce went down to about 0.8% as shown in Table 1.

The major employer of MW was the MOH (n=1,048, 72.8%) which includes the two main sectors of the MOH; the MOH hospitals (n=515, 35.8%) and the MOH health centers (n=533, 37%). Private hospitals employed 14% (n= 202) of the MW, the RMS employed only 8.6% (n= 124) and the percentage of MWs in the university affiliated hospitals was as low as 1.3% (n= 18). Only 2.8% (n= 40) of the MW were non-Jordanian (Pie Chart 3).

Piechart 3 Percentages of Midwives in the Different Health Sectors in 2007

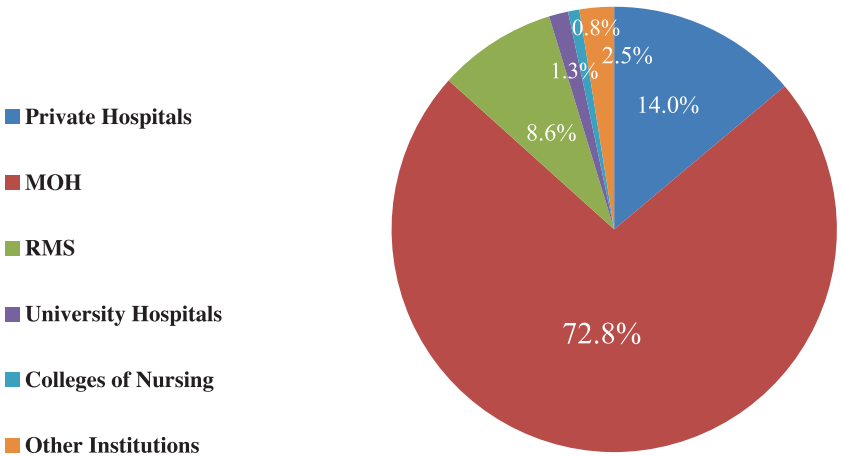


Table 11 shows the profile of the midwives in Jordan. The MWs were mainly working in hospitals (n=858, 59.6%) and health care centers (n=570, 39.6%).

Table 11 - Profile of Midwives in Jordan

Sector	No. of MSN Midwifery		No. of BSN Midwifery		No. of 3 Year diploma		No. of Associate Degree		Total no. of Jordanian and non-Jordanian		Total MW	%Jordanian and non Jordanian		% of MW in sectors
	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor		Jor	Non-Jor	
Private Hospitals	1	0	38	16	69	9	54	15	162	40	202	80.2%	19.8%	14.0%
MOH Hospitals	1	0	24	0	196	0	294	0	515	0	515	100.0%	0.0%	35.8%
MOH primary health	0	0	8	0	516	0	9	0	533	0	533	100.0%	0.0%	37.0%
RMS	0	0	36	0	67	0	21	0	124	0	124	100.0%	0.0%	8.6%
University Hospitals	0	0	18	0	0	0	0	0	18	0	18	100.0%	0.0%	1.3%
Universities	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%
Colleges of Nursing	0	0	9	0	0	0	3	0	12	0	12	100.0%	0.0%	0.8%
Other institutions	0	0	3	0	33	0	0	0	36	0	36	100.0%	0.0%	2.5%
Total	2	0	136	16	881	9	381	15	1400	40	1440	97.2%	2.8%	100.0%

The RMS usually covers its needs from the midwivery workforce by employing double-qualified nurses, a group that was not captured in this study. Double-qualified nurses have their basic education from baccalaureate or diploma nursing programs in addition to the post basic diploma in midwifery. This group might still recognizes themselves as RNs.

The shortage of midwives continues to be a major challenge at the national and global levels. Remote areas are the most affected areas of inadequate numbers of MW in Jordan. The choice of female high school students has been in favor of selecting nursing programs rather than the midwifery programs. This might be attributed to the image of midwives in Jordan which is mainly connected to the traditional birth attendants (Daya) image.

Jordan University of Science and Technology (JUST) established the first baccalaureate midwifery program in Jordan in 2003. Currently, there are 102 midwifery students at JUST where only 125 midwives graduated from the program during the period of 2003-2008. Thus, the number of students in the midwifery baccalaureate program is very low compared to the large number of students in the baccalaureate nursing program which accounted for more than 2,000 BSN students.

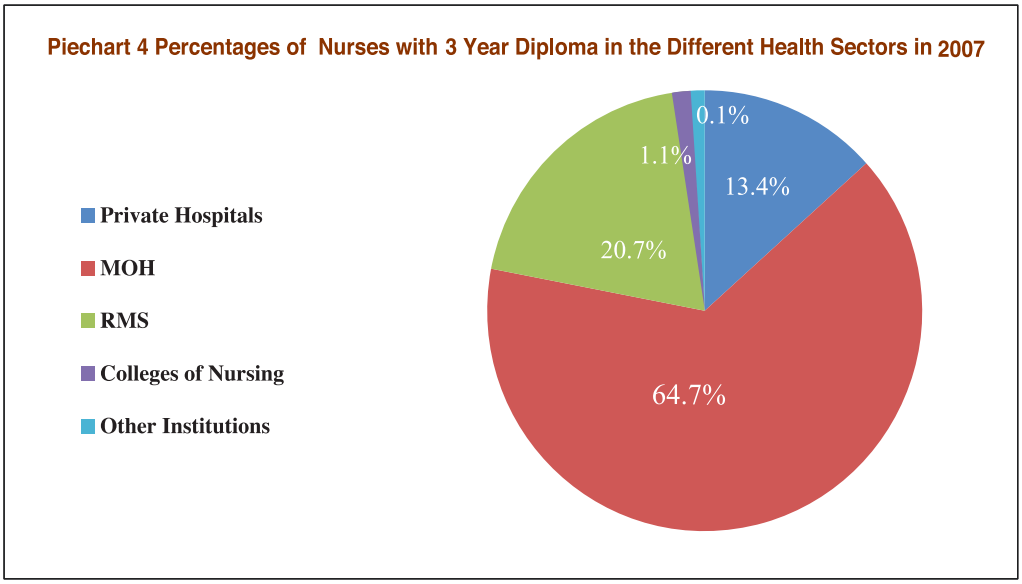
Profile of Diploma Nurses

Box 5

Profile of Diploma Nurses:

* Diploma nurses comprised about one-tenth of the nursing workforce and one- fifth of the RNs nursing workforce.
* They graduated from a three-year community college nursing programs. The diploma program was established by the Ministry of Health in 1954 and later by the Royal Medical Services in 1962.
* They witnessed a sharp decline in its number from 2003-2007 due to the termination of the program.
* They were mainly employed by the MOH hospitals.
* Female diploma nurses comprised more than two-thirds of all diploma nurses.

Diploma nurses comprised about 20.7% (n=1,626) of the RNs in the nursing workforce and only 9.3% of the nursing workforce in Jordan in 2007 (Table 8). The number of diploma nurses witnessed a sharp decline during the period of 2004-2007 due to the termination of the program. The diploma nurses percentage of all registered nurses was 40.4% (n=2,415) in 2003 and went down to 20.7% (n=1,626) in 2007. The major employers of diploma nurses were the hospitals (n=1,487, 91.5%) followed by health care centers (n=135, 8.3%). The MOH hospitals employed the largest number which was 937 diploma nurses; the RMS was the second employer with 332 diploma nurses and the private hospitals had only 218 diploma nurses (Pie Chart 4).



The decrease of diploma nurses in Jordan is attributable to two trends:

* *The phase-out and termination of the diploma programs in Princess Muna College of Nursing and Allied Health Professions at the Royal Medical Services, as well as Rofida College of Nursing and Nusiba College of Nursing at the Ministry of Health.*

* *The establishment of the RN to BSN bridging program has provided a great opportunity for nurses to enhance their nursing career.*

Female nurses with diploma certificates accounted for 72.2% (n=1,174) of diploma nurses compared to 27.8% (n=452) of Jordanian male nurses with these diplomas. Only 1.6% (n=25) were non-Jordanian nurses with diplomas in nursing (Table 4).

Table 12 shows the profile of diploma nurses in Jordan.

Table 12 - Profile of Diploma Nurses in Jordan

Sector	No. of Diploma nurses			Total male and female		Total diploma nurses	% male and female		% Male and female Jordanian and non Jordanian				% Jordanian and non Jordanian		% of diploma in sectors
	Male		Female	Male	Female		Male	Female	Male		Female		Jor	Non-Jor	
	Jor	Non-Jor	Jor						Jor	Non-Jor	Jor	Non-Jor			
Private Hospitals	55	1	138	56	162	218	25.7%	74.3%	25.2%	0.5%	63.3%	11.0%	88.5%	11.5%	13.4%
MOH Hospitals	320	0	617	320	617	937	34.2%	65.8%	34.2%	0.0%	65.8%	0.0%	100.0%	0.0%	57.6%
MOH Primary Health	16	0	99	16	99	115	13.9%	86.1%	13.9%	0.0%	86.1%	0.0%	100.0%	0.0%	7.1%
RMS	57	0	280	57	280	337	16.9%	83.1%	16.9%	0.0%	83.1%	0.0%	100.0%	0.0%	20.7%
University Hospitals	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Universities	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Colleges of Nursing	0	0	1	0	1	1	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.1%
Other Institutions	3	0	15	3	15	18	16.7%	83.3%	16.7%	0.0%	83.3%	0.0%	100.0%	0.0%	1.1%
Total	451	1	1150	452	1174	1626	27.8%	72.2%	27.7%	0.1%	70.7%	1.5%	98.5%	1.5%	100.0%

Profile of Practical Nurses

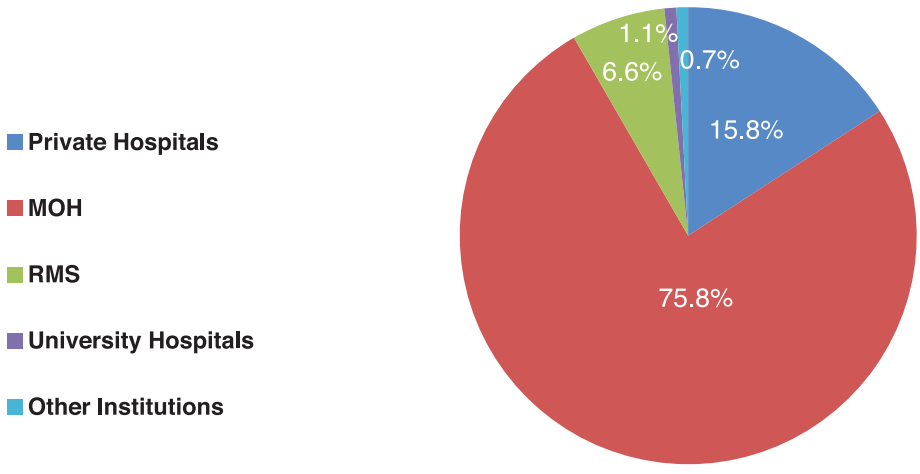
Box 6

Profile of Practical Nurses:

* Practical nurses comprised about one-fifth of the nursing workforce.
* They are mainly employed by the MOH health care centers and hospitals.
* Male PN nurses comprised about one-fourth of the PN nurses.
* PN: hospital bed ratio was 0.20 practical nurse to one hospital bed.
* The number of PN nurses witnessed a major decline from 2003-2007 due to the termination of the program.

PNs comprised about 20.4% (n= 3,556) of the nursing workforce in Jordan with a sharp decline of 42.2% from 2003 due to the termination of the PN program in 1998 (table 8).The MOH was the major employer of the PNs (n= 2,694, 75.7%), the second employer was private hospitals (n= 562, 15.8%) followed by the RMS (n= 235, 6.6%) and university affiliated hospitals (n= 39, 1.1%) as shown in Pie chart 5.

Piechart 5 Percentages of Practical Nurses in the Different Health Sectors in 2007



Practical nurses in the MOH were allocated to MOH hospitals (n= 380) and health care centers (n= 208).

The diploma and practical nursing programs were phased out and terminated in 2002 and 1998 respectively. Therefore, diploma nurses and practical nurses numbers will decrease overtime because of retirement and bridging programs in addition to the termination of the related programs.

Table 13 shows the profile practical nurses in Jordan.

Table 13 - Profile of Practical Nurses in Jordan

Sector	No. of PNs				Total male and female		Total no. of PNs	% male and female		% Male and female Jordanian and non Jordanian				% Jordanian and non Jordanian		% of PNs in sectors
	Male		Female							Male		Female				
	Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female	Jor	Non-Jor	Jor	Non-Jor	Jor	Non-Jor	
Private Hospitals	235	5	305	17	240	322	562	42.7%	57.3%	41.8%	0.9%	54.3%	3.0%	96.1%	3.9%	15.8%
MOH Hospitals	380	0	915	1	380	916	1296	29.3%	70.7%	29.3%	0.0%	70.6%	0.1%	99.9%	0.1%	36.4%
MOH primary health	208	0	1190	0	208	1190	1398	14.9%	85.1%	14.9%	0.0%	85.1%	0.0%	100.0%	0.0%	39.3%
RMS	87	0	148	0	87	148	235	37.0%	63.0%	37.0%	0.0%	63.0%	0.0%	100.0%	0.0%	6.6%
University Hospitals	30	0	9	0	30	9	39	76.9%	23.1%	76.9%	0.0%	23.1%	0.0%	100.0%	0.0%	1.1%
Universities	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Colleges of Nursing	0	0	1	0	0	1	1	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%
Other institutions	9	0	16	0	9	16	25	36.0%	64.0%	36.0%	0.0%	64.0%	0.0%	100.0%	0.0%	0.7%
Total	**949**	**5**	**2584**	**18**	**954**	**2602**	**3556**	**26.8%**	**73.2%**	**26.7%**	**0.1%**	**72.7%**	**0.5%**	**99.4%**	**0.6%**	**100.0%**

Profile of Non Nursing Workforce

Data on the profile of the non-nursing workforce, who were working in nursing field, revealed that around 13.9% (n=2,809) of those who were working in the nursing field were not qualified nurses (Table 14).

Table 14 - Comparisons Between Nursing Workforce (RNs, ADs, PNs and MW) and Non-Nursing workforce (Tawjehi and 9th Grade) in 2003 and 2007

Year	no. of nursing and non-nursing workforce in 2003	% of the nursing workforce in 2003	% of working in nursing field (nurses and non-nurses) in 2003	no. of nursing and non-nursing workforce in 2007	% of the nursing workforce in 2007	% of working in nursing field (nurses and non-nurses) in 2007	Differences of numbers 2003 and 2007
Total RNs	**6007**	**44.4%**	**37.3%**	**7842**	**45.0%**	**38.7%**	**1835**
MW	1233	9.1%	7.7%	1440	8.3%	7.1%	207
ADs	1241	9.2%	7.7%	4593	26.3%	22.7%	3352
PNs	5058	37.4%	31.4%	3556	20.4%	17.6%	-1502
Total no. of nurses nursing field 2003-2007	**13539**	--		**17431**	--		**3892**
High School Tawjehi	2556	--	15.9%	2123	--	10.5%	-433
9th grade	NA*		–	686		3.4%	NA*
Total of working in (nurses and non-nurses)	**16095**	**100.0%**	**100.0%**	**20240**	**100.0%**	**100.0%**	**4145**

*NA: Not applicable

The non nursing workforce employees graduates from the 9th and 12th grades of high schools. Their practice is not regulated by any means, they are not trained, and are not qualified to carry out any nursing responsibilies. Non-nurses graduated from Tawjihi (twelve years of schooling with a shallow focus on nursing) and nine years of schooling with no focus on nursing at all. The 12th grade group was a product of a two-year high school program with a nursing focus at the Ministry of Education. The program was offered to 9th grade weak students who were not capable to branch into the scientific, art, agriculture, or other high school programs. The program was terminated in 2002 and the product of the program had never been considered part of the nursing workforce and they were not able to join existing nursing programs.

Many non-nurses assumed and carried out the responsibilities of the RNs and AD nurses especially in private hospitals as well as in the MOH hospitals and health care centers. This group will definitely have a negative impact on the quality of patient care. It was reported that "hospitals will always advocate for the one-year or the two-year nursing programs because they produce workers who will be willing to work for less than better-educated nurses. For example, a facility may substitute baccalaureate nurses with less educated nurses or nurse assistants whenever there is a cutback in the budget or whenever resources have to be constrained" (10).

It is unrealistic to have a surplus of more than 1,000 unemployed qualified male registered nurses in 2007 while having more than one-tenth of those assuming nursing responsibilities in Jordan with no nursing qualifications and preparation at all (20).

Policy issue: *The high school program with a nursing focus was terminated based on the recommendation of the Jordanian Nursing Council in 2003. The program was replaced with a health focused program which incorporated more scientific courses at the high school level.*

The vast majority of the non-nursing workforce were females (74.3%) and around 36% of the non-nursing employees worked in hospitals which were mainly private hospitals (Table 15).

Table 15 - Profile of Non Nursing Workforce (Tawjehi and 9th grade) in 2007

Sector	No. of Tawjehi				Total no. of Tawjehi	% of Male and Female		No. of 9th grade				Total no. of 9th grade	% of Male and Female		Total no. nursing workforce male and female		Total no. ot non nursing workforce	% of non nursing in sectors	% of non nursing male and female	
	Male		Female			Male	Female	Male		Female			Male	Female	Male	Female			Male	Female
	Jor	Non-Jor	Jor	Non-Jor				Jor	Non-Jor	Jor	Non-Jor									
Private Hospitals	185	1	445	5	636	29.2%	70.8%	37	0	58	9	104	35.6%	64.4%	223	517	740	26.3%	30.1%	69.9%
MOH hospitals	20	0	55	0	75	26.7%	73.3%	5	0	36	0	41	12.2%	87.8%	25	91	116	4.1%	21.6%	78.4%
Primary health centers in MOH	166	0	812	0	978	17.0%	83.0%	86	0	413	0	499	17.2%	82.8%	252	1225	1477	52.6%	17.1%	82.9%
RMS	1	0	0	0	1	100.0%	0.0%	0	0	0	0	0	0.0%	0.0%	1	0	1	0.0%	100.0%	0.0%
University Hospitals	12	0	107	0	119	10.1%	89.9%	9	0	32	0	41	22.0%	78.0%	21	139	160	5.7%	13.1%	86.9%
Universities	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0.0%	0.0%	0	0	0	0.0%	0.0%	0.0%
Colleges of Nursing	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0.0%	0.0%	0	0	0	0.0%	0.0%	0.0%
Other institutions	199	0	115	0	314	63.4%	36.6%	0	0	1	0	1	0.0%	100.0%	199	116	315	11.2%	63.2%	36.8%
Total	**583**	**1**	**1534**	**5**	**2123**	**27.5%**	**72.5%**	**137**	**0**	**540**	**9**	**686**	**20.0%**	**80.0%**	721	2088	2809	**100.0%**	25.7%	74.3%
% Jordanian and non Jordanian	27.5%	0.0%	72.3%	0.2%				20.0%	0.0%	78.7%	1.3%									

The largest employer sector for the non-nursing workforce was the MOH. Around 52.6% (n=1,477) of the non-nursing workforce worked in the MOH health care centers and 75.5% of the non-nursing employees (n= 2,123) graduated with 12 years of schooling. When taking into account all workforces in the nursing field in hospitals, around a 5-9% decline was noticed in the percentage of RNs working in the MOH, private and university hospitals. The same trend was found with ADs numbers which declined to about 2-4%. The only hospital that was not employing non-nurses was the RMS hospitals.

Thus, the identification of the nursing workforce in Jordan should be clear and not misleading. The nursing workforce should be limited to the main two entry levels of the nursing practice in Jordan- for the time being-which includes all nurses graduating from universities (baccalaureate degrees) and colleges of nursing (associate degrees). Therefore, high school graduates with 12 years of education with a focus on nursing as well as students who graduated after nine years of schooling should not be considered as part of the nursing workforce. This group of employees should be trained and prepared as community health workers since they were not prepared to assume any nursing responsibilities.

4

Chapter Four

Key Issues on Gender and Education in Nursing

Gender and Registered Nurses

Female nurses comprised about 61.7% (n= 4,841) of the RNs workforce in 2007 (Table 7). They remained the largest group at all levels of education and they ranged from 75% at the doctorate level to 58% at the baccalaureate level. The largest percentage of male nurses among all groups of nurses were male nurses with baccalaureate degree (n=2,391, 41.7%). Male nurses comprised about 38.3% of RNs, about 44.7% (n=2,055) of ADs and 26.8% (n=954) of PNs. They also accounted for 36% of master prepared nurses and 24.8% of nurses with PhDs.

Table 7 shows that the vast majority of male RNs were working in hospitals which accounted for more than 93%. Male RNs comprised about 43.9 % (n=1,000) in the MOH hospitals, 43.4% (n=918) in the private hospitals and 42 % (n=371) in university affiliated hospitals.

A smaller number of male RNs were found in the Royal Medical Services, universities and health care centers which accounted for 29.1%, 27.6% and 17.6% respectively. The percentage of male BSN nurses working in the MOH hospitals was slightly higher (50.7%) than that for female BS nurses (49.3%).

Male AD nurses were mainly employed by the RMS, private and the MOH hospitals. Both the MOH and the RMS have their own AD programs.

When it comes to nurses with master degrees, male nurses reported a higher percentage than that of female nurses in university affiliated hospitals, the MOH and the RMS hospitals which accounted for 63.6% (n=14), 56.8% (n=21) and 53.3% (n=8) respectively. Thus, the main employers of male RNs with master degrees were the clinical settings such as MOH, private, RMS and university affiliated hospitals.

As for the education sector, male nurses with master degrees reported 41.7% of all master prepared nurses working in the community colleges. Table 7 shows that the total number of nurses with doctorate degrees in 2007 was 149 nurses (1.9% of all RNs,) of which around 90% (n= 134) of them were working in the universities. Out of the 134 doctorate prepared nurses who were working in the universities, around 46.3% (n=62) were non-Jordanian. Therefore, after excluding non-Jordanian PhD nurses (n=59), Jordanian female nurses comprised only 60.1% (n=53) of all Jordanian PhD nurses (n= 87).

Thus, the growing percentage of PhD female nurses during the period of 2003-2007 was mainly attributed to the increasing number of non-Jordanians which accounted for 53% (n=59) of all female RNs with PhDs, a number that is higher than that of the Jordanian female nurses with doctorate degrees.

However, Jordanian male nurses comprised around 39.1% (n= 34) of Jordanian nurses with doctorate degrees in the universities and around 36% (n= 119) of the nurses with master degrees. Nurses with master degrees accounted for 4.2% (n= 329) of the total RN nurses of which around 63.5% were female nurses (n= 209). Most nurses with master degrees were working in universities (n= 117, 35.6%) followed by private and public community colleges of nursing (n= 72, 21.9 %), private hospitals (n=42, 12.8%), the MOH hospitals (n= 37, 11.2%), university affiliated hospitals (n=22, 6.7%) and the Royal Medical Services (n= 15, 4.6 %).

Gender and Education

Both male and female nurses with baccalaureate degrees witnessed an increase in their numbers throughout the period of 2003-2007 as shown in Table 8. The number of male nurses with BSN degrees increased about 43.4% in 2007 (n= 2,392 male nurses) from 1,323 male nurses with BSN degrees in 2003 compared to an increase of 56.6% in the number of female BSN nurses which reached up to 3,346 female nurses in 2007. However, a change of percentages of male and female BSN nurses was in favor of male nurses who had increased its percentage by about 1.3% in 2007.

This might be attributed to the fact that nursing has been the best job for "employability" and the establishment of new nursing programs in private universities as well as the parallel programs in public universities. Thus, more male students have applied to BSN nursing programs. Male nursing students comprised about 50-90% of nursing students in private universities and parallel programs. Both private and public universities' parallel programs charged about 5-6 times higher tuition than that of the regular nursing programs offered by public universities. In addition, some nursing schools have two separate programs: one for female students and the other for male students.

Policy Issue: In an effort to solve the problem of gender imbalances in Jordan (26, 27), the JNC, through its joint policy committee between the JNC and the Ministry of Higher Education in 2006 and 2007 approved a percentage of male to female students at 30 : 70 for the enrollment of students in universities and raised the entry grade average of Tawjihi (the final year of high school) for BSN university programs to 70%.

However, a gender discrimination by parents has been noticed when it comes to supporting nursing education in private universities and the parallel BSN programs at the public universities. Regardless of their economic status, parents tend to support the education of their sons rather than their daughters in the private sectors and the parallel BSN programs due to the high costs of the programs. To recruit female students from all over the country into the nursing profession, a fund was established by Her Royal Highness Princess Muna Al-Hussein to enhance the development of nursing in Jordan in 2005.

Box 7

Princess Muna Fund

The Princess Muna Fund was established by Her Royal Highness Princess Muna Al-Hussein by a Royal Decree in 2005.

Mission:

The Princess Muna Fund was established to enhance the development of nursing in Jordan.

Objectives:

The fund awards scholarships to female students entering the undergraduate nursing programs in public universities to achieve the following:

* Encourage excellence in academic nursing performance.
* Encourage students with good Tawjihi grades to join baccalaureate nursing programs.
* Support students of good academic standing, who choose to join baccalaureate nursing programs and are hindered by financial difficulties.
* Support enrolled students in nursing programs and who are in need of financial support.
* Encourage the enrollment of females into the nursing profession.
* Encourage the enrollment of ADs to the baccalaureate programs in nursing.

Reference: Jordanian Nursing Council, (2005). Pamphlet on Princess Muna Fund. JNC, Jordan.

Table 16 shows male and female Jordanian nurses with doctorate degree (PhD), master degree (MSN) and baccalaureate degrees (BSN) in 2003 and 2007.

Table 16 - Nursing Turnover Among Nurses with PhD, MSN and BSN from 2003-2007

Year	PhD	MSN	BSN
No. of nurses in 2003	49	246	3274
No. of nurses in 2007	149	329	5738
No. of graduated nurses 2003-2007*	NA**	226	5671
% of the Differences (2003-2007)	67.1%	25.2%	42.9%
Number of droporut nurses beween 2003-2007	0	143	3207
Nursing turnover beween 2003-2007	0.0%	30.3%	35.9%

*Graduated Jordanian nurses with PhD,MSN and BSN from 2003/2004-2007/2008

** NA : Not applicable

The number of nursing graduates of baccalaureate nursing programs from 2004 to 2007 was 5,671. This means that the overall number of nurses which should have been available in Jordan from 2003 to 2008 was 8,945 RNs. Since we have only 5,671 RNs then a total number of 3,207 RNs might be inactive or traveled abroad in addition to another 143 nurses with master degrees (Table 16).

Interestingly, about 41.6% of the PhD holders were non-Jordanian nurses. Jordanian female nurses with PhDs comprised of only 35.6% all of PhD holders (Table 4). Data revealed that the number of Jordanian nurses with PhDs was relatively low (n=87) in 2007 (Table 17).

Table 17 - Comparisons Between Qualifications of Jordanian Nurses with PhD and MSN in 2003 and 2007

Year	No. of PhD nurses		Total no. of PhD nurses	% of Phd		No. of MSN nurses		Total no. of MSN nurses	% of MSN	
	Male	Female		Male	Female	Male	Female		Male	Female
2003*	19	30	49	38.8%	61.2%	95	151	246	38.6%	61.4%
2007	34	53	87	39.1%	60.9%	119	203	322	37.0%	63.0%
Difference of number of nurses 2003-2007	15	23	38	39.5%	60.5%	24	52	76	31.6%	68.4%
% of the difference 2003-2007	44.1%	43.4%	43.7%	———	———	20.2%	25.6%	23.6%	———	———

*** The nurmber of PhD nurses include Jordanian and Non Jordanian in 2003**

The number of Jordanian nurses with PhD and master degree is not available for 2003. However, only 23 female and 15 male Jordanian nurses with PhDs joined the nursing workforce during the period of 2003-2007. Another 52 female nurses and 24 male nurses with master degrees joined the nursing workforce in Jordan over the same period of time. The growth in the number of female nurses with master degrees was around twice that of male nurses with master degrees. However, the number of nurses with master degrees only reflected those who worked in Jordan in 2003 and 2007. The only group which was affected when including the non-Jordanian nursing workforce with PhD, MSN and BSN in nursing was the PhD holders (Table 18). Jordanian universities master degree programs also witnessed an increasing number of male nurses from 2003-2007 as shown in Table 19.

Table 18 - Comparisons Between Qualifications of Jordanian and Non-Jordanian Nurses with PhD, MSN and BSN in 2003 and 2007

Year	No. of PhD nurses		Total no. of PHD	% of PhD		No. of MSN nurses		Total no. of MSN	% of MSN		No. of BSN nurses		Total no. of BSN	% of BSN	
	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female
2003	19	30	49	38.8%	61.2%	95	151	246	38.6%	61.4%	1323	1951	3274	40.4%	59.6%
2007	37	112	149	24.8%	75.2%	120	209	329	36.5%	63.5%	2392	3346	5738	41.7%	58.3%
Difference of number of nurses 2003-2007	18	82	100	18.0%	82.0%	25	58	83	30.1%	69.9%	1069	1395	2464	43.4%	56.6%
% of the difference 2003-2007	48.6%	73.2%	67.1%	———	———	20.8%	27.8%	25.2%	———	———	44.7%	41.7%	42.9%	———	———

Table 19 - Numbers, Percentages and Gender Distribution of MSN Nurses Graduated From Jordanian Universities Between the Years 2003/2004 to 2006/2007

University	No.of nurses graduated 2003-2004		Total	% of nurses graduated 2003-2004		No. of nurses graduated 2004-2005		Total	% of nurses graduated 2004-2005		No. of nurses graduated 2005-2006		Total	% of nurses graduated 2005-2006		No. of nurses graduated 2006-2007		Total	% of nurses graduated 2006-2007		Total no. of MSN nurses		Total	% of MSN nurses	
	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female
University of Jordan	2	19	21	9.5%	90.5%	17	20	37	45.9%	54.1%	20	19	39	51.3%	48.7%	19	11	30	63.3%	36.7%	58	69	127	45.7%	54.3%
Jordan University of Science and Technology	6	5	11	54.5%	45.5%	6	15	21	28.6%	71.4%	12	28	40	30.0%	70.0%	14	13	27	51.9%	48.1%	38	61	99	38.4%	61.6%
Total	**8**	**24**	**32**	**25.0%**	**75.0%**	**23**	**35**	**58**	**39.7%**	**60.3%**	**32**	**47**	**79**	**40.5%**	**59.5%**	**33**	**24**	**57**	**57.9%**	**42.1%**	**96**	**130**	**226**	**42.5%**	**57.5%**

More male nurses (n=33 male nurses) were admitted to the MSN program than female nurses (n=24 female nurses) in 2006 - 2007. Female nurses with master degrees comprised about 57.5% (n=130) of all nursing graduates from Jordan universities. The largest intake of master students was in 2005-2006 (n=79 students).

If the trend at Jordan University continues in accepting more male nurses than female nurses, there will be more master prepared male nurses which might cause "a shift in power" in favor of male nurses in the long run.

Table 20 shows the number of all nursing graduate students in the academic year 2007-2008 who were working on their master and doctorate degrees in nursing at Jordan University and Jordan University of Science and Technology. The percentage of male to female nurses gets much closer to fifty-fifty which accounted for 48.1% for male students and 51.9% for female students.

Table 20 - Distribution of Numbers and Gender of MSN and PhD Nursing Sudents in Jordanian Universities in 2007-2008

University	No. of PhD Students		Total no. of PhD	% of PhD Students		No. of MSN students		Total no. of MSN	%of MSN students		Total of no. of PhD + MSN studenta male and Female		Total of no. of PhD + MSN student	%of of PhD + MSN students male and Female	
	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female
University of Jordan	12	12	24	50.0%	50.0%	42	27	69	60.9%	39.1%	54	39	93	58.1%	41.9%
Jordan University and Science and Technology	0	0	0	0.0%	0.0%	70	76	146	47.9%	52.1%	70	76	146	47.9%	52.1%
Total	**12**	**12**	**24**	**50.0%**	**50.0%**	**112**	**103**	**215**	**52.1%**	**47.9%**	**124**	**115**	**239**	**51.9%**	**48.1%**

The picture is similar for nursing graduate students who were working on their master degrees as we have noticed more male nursing students (n=112, 52%) than female nursing students (n= 103, 47.9%) in the graduate programs. It is expected that more male nurses will go into graduate nursing programs. This scenario was based on the fact that we have over saturation of male nurses with baccalaureate degrees in Jordan. Thus, the best outlet for some male nurses will be the higher education degree that might help them in maximizing their job opportunities inside and outside of Jordan.

As we will discuss later in Chapter Five, the numbers of nursing students who are currently seeking their baccalaureate degrees in the academic year 2008-2009 have been collected from the public and private universities in Jordan. The number of male nursing students is about 1.5 times the number of female nursing students as we will see later in Table 22 in chapter five. Thus, upon graduation of nursing, students over the coming four years, the number will be in favor of male nurses (n=5,911) with a percentage of 60% for male nurses as compared to 40% for female nurses (n=3,942). This will automatically affect the total number and gender distribution of the nursing workforce in the coming years. More key policy issues will be elaborated in relation to male and female nursing supply and turnover in Chapter Five and Chapter Six.

The large number of male nurses in Jordan will continue to be a major challenge to the nursing and health care sectors since the imbalance in female to male ratio will continue for at least the coming seven to ten years.

5

Chapter Five

Key Issues on Nursing Supply and Turnover

Past, Current and Future Supply of Baccalaureate Nursing Students

The total number of nurses who graduated during the period of 2003-2007 was 5,671 nurses (Table 21). There was a large increase in the number of graduate students that amounted to 908 graduates in the academic year 2005-2006 with a difference of 300 more graduates from that reported in 2004. However, the academic year 2007-2008 witnessed the largest group of nursing students graduating throughout the history of Jordan universities which reached to 1,967 graduate students.

Table 21 - Distribution of Numbers, Percentages and Gender of BSN Nurses Graduated from Jordanian Universities Between 2003 to 2007

University	no. of nurse graduates in 2003	no. of nurse graduates in 2004	2005-2006					2006-2007					2007-2008						
			no. of nurse graduates in 2005-2006		% of nurse graduates Male and female in 2005-2006		Total no. of nurse graduates in 2005-2006	no. of nurse graduates in 2006-2007		% of nurse graduates Male and female in 2006-2007		Total no. of nurse graduates in 2006-2007	no. of nurse graduates in 2007-2008		% of nurse graduates Male and female in 2007-2008		Total no. of nurse graduates in 2007-2008	Total no. of nurse graduates in 2007-2008 from 2003 to 2007	% of nurse graduates in 2007-2008 from 2003 to 2007
			Male	Female	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female			
University of Jordan	163	155	142	20	87.7%	12.3%	162	289	107	73.0%	27.0%	396	172	134	56.2%	43.8%	306	1182	20.8%
Princess Muna College of nursing and allied health professions	49	68	0	63	0.0%	100.0%	63	0	140	0.0%	100.0%	140	0	125	0.0%	100.0%	125	445	7.8%
Mutah University	0	79	29	95	23.4%	76.6%	124	62	72	46.3%	53.7%	134	49	40	55.1%	44.9%	89	426	7.5%
Hashemite University	92	59	76	53	58.9%	41.1%	129	137	74	64.9%	35.1%	211	131	83	61.2%	38.8%	214	705	12.4%
Jordan University of Science and Technology	200	174	78	95	45.1%	54.9%	173	185	133	58.2%	41.8%	318	228	145	61.1%	38.9%	373	1238	21.8%
Applied Science Private University	3	4	19	6	76.0%	24.0%	25	53	9	85.5%	14.5%	62	84	38	68.9%	31.1%	122	216	3.8%
Al-Zaytoonah University of Jordan	84	75	112	22	83.6%	16.4%	134	172	36	82.7%	17.3%	208	295	83	78.0%	22.0%	378	879	15.5%
Al al-Bayt University	0	0	69	29	70.4%	29.6%	98	75	47	61.5%	38.5%	122	92	67	57.9%	42.1%	159	379	6.7%
Philadelphia University	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	131	13	91.0%	9.0%	144	144	2.5%
Al-Ahliyya Amman University	0	0		0	0.0%	0.0%	0	0	0	0	0	0	22	11	66.7%	33.3%	33	33	0.6%
Irbid National University	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Al-Isra Private University	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Al-Hussein Bin Talal University	0	0	0	0	0.0%	0.0%		0	0	0	0	0	0	0	0	0	0	0	0.0%
Zarqa Private University	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	1	0	100.0%	0.0%	1	1	0.0%
Jerash Private University	0	0		0	0.0%	0.0%	0	0	0	0	0	0	16	7	69.6%	30.4%	23	23	0.4%
Total	**591**	**614**	**525**	**383**	**57.8%**	**42.2%**	**908**	**973**	**618**	**61.2%**	**38.8%**	**1591**	**1221**	**746**	**62.1%**	**37.9%**	**1967**	**5671**	**100.0%**

The vast majority of BSN nurses graduated from Jordan University of Science and Technology (n=1,238), the University of Jordan (n=1,182), Al-Zaitonah University (n=879) and the Hashemite University (n=705).

Currently, in the academic year of 2008-2009, male BSN nursing students comprise the majority (60%) of nursing students in Jordan (Table 22). The vast majority of BSN students are located in four universities: JUST, Jordan University, the Hashemite University, Al-Zaitounah University and the Applied Science Private University.

Table 22 - Numbers and Gender Distribution of Expected Jordanian and Non Jordanian Graduating Nursing Students from Jordanian Universities from 2008/2009 to 2011/2012

University	No. of graduating nursing students in 2008-2009				Total no. of graduating nursing students male and female 2008-2009		Total no. of graduating nursing students in 2008-2009	% of graduating nursing students male and female 2008-2009		No. of graduating nursing students in 2009- 2010				Total no. of graduating nursing students male and female 2009- 2010		Total no. of graduating nursing students in 2009-2010	% of graduating nursing students male and female in 2009- 2010	
	Male		Female							Male		Female						
	Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female	Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female
University of Jordan	176	10	96	5	186	101	287	64.8%	35.2%	228	5	207	5	233	212	445	52.4%	47.6%
Jordan University of Science and Technology	197	22	146	2	219	148	367	59.7%	40.3%	387	20	199	10	407	209	616	66.1%	33.9%
Mutah University	44	0	41	2	44	43	87	50.6%	49.4%	78	2	81	1	80	82	162	49.4%	50.6%
Princess Muna College of nursing and allied health professions	0	0	125	0	0	125	125	0.0%	100.0%	0	0	131	0	0	131	131	0.0%	100.0%
Al al-Bayt University	102	1	46	4	103	50	153	67.3%	32.7%	139	1	90	4	140	94	234	59.8%	40.2%
Jerash Private University	13	0	6	0	13	6	19	68.4%	31.6%	56	5	34	2	61	36	97	62.9%	37.1%
Al-Isra Private University	0	0	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	0	0.0%	0.0%
Philadelphia University	139	8	10	1	147	11	158	93.0%	7.0%	260	12	25	1	272	26	298	91.3%	8.7%
Al-Ahliyya Amman University	13	2	14	0	15	14	29	51.7%	48.3%	93	6	26	1	99	27	126	78.6%	21.4%
Hashemite University	124	0	72	0	124	72	196	63.3%	36.7%	190	0	99	0	190	99	289	65.7%	34.3%
Al-Hussein Bin Talal University	0	0	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	0	0.0%	0.0%
Irbid National University	0	0	0	0	0	0	0	0.0%	0.0%	0	0	0	0	0	0	0	0.0%	0.0%
Applied Science Private University	314	50	24	54	364	78	442	82.4%	17.6%	283	62	17	17	345	34	379	91.0%	9.0%
Al-Zaytoonah University of Jordan	150	11	20	2	161	22	183	88.0%	12.0%	325	40	90	8	365	98	463	78.8%	21.2%
Zarqa Private University	0	0	0	0	0	0	0	0.0%	0.0%	78	2	38	0	80	38	118	67.8%	32.2%
Total	**1272**	**104**	**600**	**70**	**1376**	**670**	**2046**	**67.3%**	**32.7%**	**2117**	**155**	**1037**	**49**	**2272**	**1086**	**3358**	**67.7%**	**32.3%**

Table 22 - Numbers and Gender Distribution of Expected Jordanian and Non Jordanian Graduating Nursing Students from Jordanian Universities from 2008/2009 to 2011/2012 con't 2

University	No. of graduating nursing students in 2010-2011				Total no. of graduating nursing students male and female in 2010-2011		Total no. of graduating nursing students in	% of graduating nursing students male and female in 2010-2011		No. of graduating nursing students in 2011-2012				Total no. of graduating nursing students male and female in 2011-2012		Total no. of graduating nursing students in 2011-2012	% of graduating nursing students male and female in 2011-2012		Total male to female 2008-2009 to 2011-2012		Total no. of graduating students male and female from 2008-2009 to 2011-2012	% of graduating students male and female from in 2008-2009 to 2011-2012	
	Male		Female							Male		Female												
	Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female	Jor	Non-Jor	Jor	Non-Jor	Male	Female		Male	Female	Male	Female		Male	Female
University of Jordan	165	10	232	5	175	237	412	42.5%	57.5%	66	0	145	0	66	145	211	31.3%	68.7%	660	695	1355	48.7%	51.3%
Jordan University of Science and Technology	299	18	189	16	317	205	522	60.7%	39.3%	157	51	294	30	208	324	532	39.1%	60.9%	1151	886	2037	56.5%	43.5%
Mutah University	62	1	73	1	63	74	137	46.0%	54.0%	50	0	84	0	50	84	134	37.3%	62.7%	237	283	520	45.6%	54.4%
Princess Muna College for nursing and allied health professions	0	0	131	0	0	131	131	0.0%	100.0%	0	0	142	4	0	146	146	0.0%	100.0%	0	533	533	0.0%	100.0%
Al al-Bayt University	111	1	115	1	112	116	228	49.1%	50.9%	52	1	93	0	53	93	146	36.3%	63.7%	408	353	761	53.6%	46.4%
Jerash Private University	53	5	6	0	58	6	64	90.6%	9.4%	9	1	10	1	10	11	21	47.6%	52.4%	142	59	201	70.6%	29.4%
Al-Isra Private University	146	16	1	0	162	1	163	99.4%	0.6%	32	4	17	4	36	21	57	63.2%	36.8%	198	22	220	90.0%	10.0%
Philadelphia University	44	2	13	0	46	13	59	78.0%	22.0%	10	0	9	1	10	10	20	50.0%	50.0%	475	60	535	88.8%	11.2%
Al-Ahliyya Amman University	22	8	1	0	30	1	31	96.8%	3.2%	1	8	1	6	9	7	16	56.3%	43.8%	153	49	202	75.7%	24.3%
Hashemite University	219	0	94	0	219	94	313	70.0%	30.0%	133	8	145	7	141	152	293	48.1%	51.9%	674	417	1091	61.8%	38.2%
Al-Hussein Bin Talal University	0	0	49	0	0	49	49	0.0%	100.0%	0	0	72	0	0	72	72	0.0%	100.0%	0	121	121	0.0%	100.0%
Irbid National University	57	1	25	1	58	26	84	69.0%	31.0%	21	1	16	0	22	16	38	57.9%	42.1%	80	42	122	65.6%	34.4%
Applied Science Private University	31	42	4	4	73	8	81	90.1%	9.9%	20	20	4	3	40	7	47	85.1%	14.9%	822	127	949	86.6%	13.4%
Al-Zaytoonah University of Jordan	85	32	30	6	117	36	153	76.5%	23.5%	43	66	55	17	109	72	181	60.2%	39.8%	752	228	980	76.7%	23.3%
Zarqa Private University	65	6	3	3	71	6	77	92.2%	7.8%	5	3	23	0	8	23	31	25.8%	74.2%	159	67	226	70.4%	29.6%
Total	**1359**	**142**	**966**	**37**	**1501**	**1003**	**2504**	**59.9%**	**40.1%**	**599**	**163**	**1110**	**73**	**762**	**1183**	**1945**	**39.2%**	**60.8%**	**5911**	**3942**	**9853**	**60.0%**	**40.0%**

The number of male nursing students is higher than that for female nursing students in eleven universities and it reaches up to more than four times that for female nursing students. The Princess Muna College of Nursing and Allied Health Professions as well as Al-Hussein Bin Talal University are the only nursing programs that accept only female students.

The private education sector reports the highest percentage of male nursing students which ranges from 65.6% at Irbid National University to 90% at Al-Isra Private University. A high percentage of male nursing students are also noticed in the public university sector as it ranges from 45.6% in Mu'tah University up to 61.8% at the Hashemite University.

JUST and Al-AlBayt University report a percentage of more than 50% for male nursing students while the University of Jordan reports a percentage of 48.7%. The vast majority of BSN nurses will be graduating from Jordan University of Science and Technology (n=2,037), the University of Jordan (n=1,355), the Hashemite University (n=1,091), Al-Zaitounah University (n= 980) and the Applied Science Private University (n= 949).

It is projected that we will have another 2,046 RNs (67.3% male nurses and 32.7% female nurses) graduating from the universities for the academic year 2008-2009 (Table 22).

The number of nurses will be higher in the following year 2009-2010 as it will mount up to 3,358 nurses with a majority of male nurses (n=2,272, 67.7%). The academic year of 2010-2011 will witness a decline in the number of graduates of BSN programs where only 2,504 nursing graduates will join the nursing workforce. Male nursing graduates of the academic year 2010-2011 will comprise about 59.9% (n= 1,501) compared to only 40.1% (n=1,003) female nurse graduates.

The total number of nurses who will be graduating over the next four years (2008 / 2009 - 2011 / 2012) is 9,853 students. Male graduates will comprise about 60% (n=5,911) of the total graduating nurses, a percentage that is much higher than that reported by the female nursing graduates which accounted for 40% (n=3,942) over the same period of time. Jordanian nursing graduates will add up to 9,060 BSN nurses while non-Jordanian nursing graduates will add up to 793 BSN nurses by the end of the 2011 - 2012 academic year (Table 23).

Table 23 - Numbers and Gender Distribution of Expected Jordanian Graduating Nursing Students from Jordanian Universities from 2008/2009 to 2011/2012

University	No. of graduating nursing students in 2008-2009		Total no. of graduating nursing students in 2008-2009	% of graduating nursing students male and female 2008-2009		No. of graduating nursing students in 2009- 2010		Total no. of graduating nursing students in 2009- 2010	%of graduating nursing students male and female 2009- 2010	
	Male	Female		Male	Female	Male	Female		Male	Female
	Jor	Jor				Jor	Jor			
University of Jordan	176	96	272	64.7%	35.3%	228	207	435	52.4%	47.6%
Jordan University of Science and Technology	197	146	343	57.4%	42.6%	387	199	586	66.0%	34.0%
Mutah University	44	41	85	51.8%	48.2%	78	81	159	49.1%	50.9%
Princess Muna College of nursing and allied health professions	0	125	125	0.0%	100.0%	0	131	131	0.0%	100.0%
Al Al-Bayt University	102	46	148	68.9%	31.1%	139	90	229	60.7%	39.3%
Jerash Private University	13	6	19	68.4%	31.6%	56	34	90	62.2%	37.8%
Al-Isra Private University	0	0	0	0.0%	0.0%	0	0	0	0.0%	0.0%
Philadelphia University	139	10	149	93.3%	6.7%	260	25	285	91.2%	8.8%
Al-Ahliyya Amman University	13	14	27	48.1%	51.9%	93	26	119	78.2%	21.8%
Hashemite University	124	72	196	63.3%	36.7%	190	99	289	65.7%	34.3%
Al-Hussein Bin Talal University	0	0	0	0.0%	0.0%	0	0	0	0.0%	0.0%
Irbid National University	0	0	0	0.0%	0.0%	0	0	0	0.0%	0.0%
Applied Science Private University	314	24	338	92.9%	7.1%	283	17	300	94.3%	5.7%
Al-Zaytoonah University of Jordan	150	20	170	88.2%	11.8%	325	90	415	78.3%	21.7%
Zarqa Private University	0	0	0	0.0%	0.0%	78	38	116	67.2%	32.8%
Total	**1272**	**600**	1872	67.9%	32.1%	**2117**	**1037**	3154	67.1%	32.9%

Table 23 - Numbers and Gender Distribution of Expected Jordanian Graduating Nursing Students from Jordanian Universities from 2008/2009 to 2011/2012 Cont'd.2

University	No. of graduating nursing students in 2010-2011		Total no. of graduating nursing students in 2010-2011	% of graduating nursing students male and female 2010-2011		No. of graduating nursing students in 2011-2012		Total no. of graduating nursing students in 2011-2012	% of graduating nursing students male and female 2011-2012		Total no. of graduating nursing students male and female 2008/2009 to 2011/2012		Total no. of graduating nursing students 2008/2009 to 2011/2012	% of graduating nursing students male to female Male to female 2008/2009 to 2011/2012	
	Male	Female		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female
	Jor	Jor				Jor	Jor								
University of Jordan	165	232	397	41.6%	58.4%	66	145	211	31.3%	68.7%	635	680	1315	48.3%	51.7%
Jordan University of Science and Technology	299	189	488	61.3%	38.7%	157	294	451	34.8%	65.2%	1040	828	1868	55.7%	44.3%
Mutah University	62	73	135	45.9%	54.1%	50	84	134	37.3%	62.7%	234	279	513	45.6%	54.4%
Princess Muna College of nursing and allied health professions	0	131	131	0.0%	100.0%	0	142	142	0.0%	100.0%	0	529	529	0.0%	100.0%
Al Al-Bayt University	111	115	226	49.1%	50.9%	52	93	145	35.9%	64.1%	404	344	748	54.0%	46.0%
Jerash Private University	53	6	59	89.8%	10.2%	9	10	19	47.4%	52.6%	131	56	187	70.1%	29.9%
Al-Isra Private University	146	1	147	99.3%	0.7%	32	17	49	65.3%	34.7%	178	18	196	90.8%	9.2%
Philadelphia University	44	13	57	77.2%	22.8%	10	9	19	52.6%	47.4%	453	57	510	88.8%	11.2%
Al-Ahliyya Amman University	22	1	23	95.7%	4.3%	1	1	2	50.0%	50.0%	129	42	171	75.4%	24.6%
Hashemite University	219	94	313	70.0%	30.0%	133	145	278	47.8%	52.2%	666	410	1076	61.9%	38.1%
Al-Hussein Bin Talal University	0	49	49	0.0%	100.0%	0	72	72	0.0%	100.0%	0	121	121	0.0%	100.0%
Irbid National University	57	25	82	69.5%	30.5%	21	16	37	56.8%	43.2%	78	41	119	65.5%	34.5%
Applied Science Private University	31	4	35	88.6%	11.4%	20	4	24	83.3%	16.7%	648	49	697	93.0%	7.0%
Al-Zaytoonah University of Jordan	85	30	115	73.9%	26.1%	43	55	98	43.9%	56.1%	603	195	798	75.6%	24.4%
Zarqa Private University	65	3	68	95.6%	4.4%	5	23	28	17.9%	82.1%	148	64	212	69.8%	30.2%
Total	**1359**	**966**	2325	58.5%	41.5%	**599**	**1110**	1709	35.0%	65.0%	5347	3713	9060	59.0%	41.0%

As we might notice in Table 23, there will be a huge number of male nursing graduates over the coming four years. By the end of the academic year 2011-2012, we will have an extra 5,347 Jordanian male nurses over and above what we have now. Male nurses are facing a serious problem of unemployment where hospitals are already satisfied with the number of male nurses they have (9, 14, 20).

Thus, the MOH, Jordanian Nursing Council and nursing institutions in addition to the private and military sectors should collaborate and cooperate together to find solid practical and sustainable solutions for the surplus and the crucial problems of unemployment of male nurses in Jordan.

A comprehensive action plan has been articulated based on the request of His Majesty King Abdullah with direct support and followed-up by Her Royal Highness Princess Muna Al-Hussein during the year 2008 to solve the unemployment problem of male nurses (28). The plan concentrated on capacity building of the male nurses while practicing in different clinical settings. The capacity building program is aimed at increasing the male nurses' opportunities to find jobs outside the country. It was coordinated by the Ministry of Labor who supported fifty-percent of the monthly allowances for male nurses to be matched with the same amount of money from the employing agency for 6 months training programs. More than 600 male nurses have joined the nursing workforce in the MOH, the RMS and the private sector since the meeting of His Majesty with all health related sectors in March, 2008 in the presence of Her Royal Highness Princess Muna Al-Hussein (29). Revision and evaluation of the comprehensive action plan is a must before the unemployment problem of male nurses gets worse and more complicated over the coming period of time.

However, the training of the male nurses should be institutionalized and efforts to develop a marketing strategy to promote male nurses outside the country needs to be in place by all stakeholders such as the MOH, the Ministry of Labor (MOL), the Ministry of Foreign Affairs, the RMS, the private sector, the Jordanian Nursing Council and the Jordanian Nursing Association. Finding solutions and alternative interventions to the problem of male nurses should be considered as a top priority for decision makers and all stakeholders in Jordan since it is not only a nursing problem, it is a national socioeconomic problem that affects a group of professionals who are badly needed all over the world.

Other opportunities for male nurses are related to the establishment and activation of solid school health programs in Jordan which will secure many employment opportunities for male nurses in schools at the Ministry of Education. The same would apply to the activation of the occupational health programs in firms and factories in Jordan .

Future Supply of Nurses with Masters and Doctorate Degree

The numbers of graduate students who have been granted scholarships from Jordanian universities were collected from all universities in the academic year 2007 - 2008. Data revealed that by the end of the academic year 2011-2012 there will be an extra 51 nurses with PhD degrees (Table 24).

Table 24 shows that the largest group of PhD holders are 19 nurses who graduated in the academic year 2007-2008. Another 12 and 15 PhD holders will graduate during the following two years respectivety. A sharp decline is noticed in the graduates of 2010/2011 and 2011/2012 which will be limited to only 2 and 3 PhD holders, respectively.

Because of the lack of Jordanian nurses with PhD degrees, nursing scholarship action plans must be prepared by Jordanian universities for the coming 10 years. The scholarship action plans should be considered as a significant part of a national plan for the entire health care workforce in the country.

Table 24 shows that only 14 master nursing students are financially sponsored by universities and they will graduate over the period of five years. The low number of scholarships for master degree programs might be attributed to the availability of nurses with master degrees at the national level. Jordan University and JUST have seven specialty areas in their master degree programs.

Table 24 - Future Supply of Nurses with Doctorate and Master Degrees Who are on Scholarships From 2007/2008 to 2010/2011

University	No. of expected nurse graduates with PhD										Total no. of expected nurses graduates with PhD	No. of expected nurse graduates with MSN								Total no. of expected nurse graduates with MSN
	2007-2008		2009-2008		2010-2009		2011-2010		2012-2011			2007-2008		2009-2008		2010-2009		2010 -2011		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		Male	Female	Male	Female	Male	Female	Male	Female	
Total no.of public Universities	9	10	3	8	5	6	0	0	1	0	42	0	3	1	2	5	1	0	0	12
Total no.of private Universities	0	0	0	1	1	3	1	1	1	1	9	0	0	0	0	0	0	1	1	2
Total	**9**	**10**	**3**	**9**	**6**	**9**	**1**	**1**	**2**	**1**	**51**	**0**	**3**	**1**	**2**	**5**	**1**	**1**	**1**	**14**

Ratio of nursing students to faculty members

Data in 2007 revealed that the total number of nursing students (first through fourth year) who were studying in the public and private universities was 9,597 nursing students and the total number of PhD nurses was 134 faculty members in addition to 117 master prepared nurses who were working at Jordanian universities. Therefore the ratio of nursing students to PhD nurses was 72: 1 in the universities (Table 25).

Table 25 - Ratios of Nursing Students to PhD and MSN Faculty Members in Jordanian Universities in 2007

University	No. of BSN students in all four years in 2006-2007	No. of PhD nurses		Total no.of PhD faculty members	Ratio of students to one PhD holder	Ratio of students to one Jordanian PhD holder	No. of MSN nurses		Total no. of MSN faculty members	Ratio of students to one MsN holder	Total no. of PhD + MSN Jordanian and non Jordanian		Total no.of PhD + MSN faculty members	% of PhD+MsN Jordanian and non Jordanian faculty members		Ratio of students to one faculty member (PhD + MsN holders)	Ratio of students to one Jordanian faculty member (PhD +MsN holders)
		Jor	Non-Jor				Jor	Non-Jor			Jor	Non-Jor		Jor	Non-Jor		
University of Jordan	1360	16	1	17	80	85	26	0	26	52	42	1	43	97.7%	2.3%	32	32
Jordan University of Science and Technology	1708	24	0	24	71	71	30	2	32	53	54	2	56	96.4%	3.6%	31	32
Mutah University	481	3	1	4	120	160	5	0	5	96	8	1	9	88.9%	11.1%	53	60
Princess Muna College of nursing and allied health professions	527	5	0	5	105	105	13	0	13	41	18	0	18	100.0%	0.0%	29	29
Al al-Bayt University	726	3	3	6	121	242	9	0	9	81	12	3	15	80.0%	20.0%	48	61
Jerash Private University	180	0	4	4	45	0	1	0	1	180	1	4	5	20.0%	80.0%	36	180
Al-Isra Private University	163	2	1	3	54	82	1	0	1	163	3	1	4	75.0%	25.0%	41	54
Philadelphia University	531	3	7	10	53	177	6	0	6	89	9	7	16	56.3%	43.8%	33	59
Al-Ahliyya Amman University	186	0	5	5	37	0	1	1	2	93	1	6	7	14.3%	85.7%	27	186
Hashemite University	1030	12	0	12	86	86	10	0	10	103	22	0	22	100.0%	0.0%	47	47
Applied Science Private University	1255	3	10	13	97	418	3	0	3	418	6	10	16	37.5%	62.5%	78	209
Al-Hussein Bin Talal University	49	1	2	3	16	49	0	0	0	0	1	2	3	33.3%	66.7%	16	49
Irbid National University	84	0	2	2	42	0	1	0	1	84	1	2	3	33.3%	66.7%	28	84
Al-Zaytoonah University of Jordan	1122	0	21	21	53	0	6	0	6	187	6	21	27	22.2%	77.8%	42	187
Zarqa Private University	195	0	5	5	39	0	2	0	2	98	2	5	7	28.6%	71.4%	28	98
Total	**9597**	**72**	**62**	**134**	**72**	**133**	**114**	**3**	**117**	**82**	**186**	**65**	**251**	**74.1%**	**25.9%**	**38**	**52**

A different picture was found in the ratio of nursing students to master prepared nurses where the ratio was 82:1. All master prepared nurses who were working in the universities were Jordanian (n=114) except for three faculty members (Table 25).

When totaling the numbers of PhD nurses and master prepared nurses, data from Table 25 shows that the ratio of students to all (Jordanian and non-Jordanian) faculty members went down to 38:1 and up to 52:1 when considering only Jordanian faculty members. This also might explain why we have more male nurses seeking their higher degrees. The education sector has been not saturated yet with faculty members, especially when we talk about Jordanian faculty members.

An interesting finding was related to the disparity in the percentages of PhD nurses compared to master prepared nurses. The percentage of PhD nursing faculty members in Jordan was only 53.4% (n= 134) compared to 46.6% (n= 117) of master prepared nurses. While the percentage of master prepared nurses in the universities should not exceed 20%, the PhD holders comprised about only 53.4% of all nursing educators in the education sector. Master prepared nurses comprised the majority of faculty members in the public sector. The highest percentage of master prepared nurses were located in the Princess Muna College for Nursing followed by Al-al-Bayt University, Jordan University of Science & Technology, Jordan University, Moutah University and the Hashemite University.

This might be related to the fact that the private universities are required to comply with the Accreditation Authority of Jordan regarding the percentage of master prepared nurses in the universities which should not exceed 20% compared to 80% for PhD holders. The public education sector has been given the opportunity to correct its status from now until 2010 which explains why they have an imbalance of PhD: MSN nursing educators ratio.

Further analysis of the ratio of nursing students to faculty members in Jordanian universities unveils the severe shortage of faculty members in Jordan, which was even more complicated with regard to numbers of Jordanian nurses with doctorate and master degrees in nursing. According to the Authority of Accreditation in Jordan, the ratio of faculty members to nursing students should be 1:40 in lecture room, 1:20 laboratories, and 1:10 in hospitals and clinical training settings. Table 26 shows that a total shortage of 106 PhD faculty members were reported in Jordanian universities in 2007 based on the faculty member to student ratio of 1: 40.

Table 26 - Numbers, Percentages and Ratios of Nursing Students to PhD Nursing Faculty Members in Jordanian Universities in 2007

University	No. of BSN students in all four years in 2006/2007	No. of PhD nurses		Total no. of PhD nurses	Ratio of students to one PhD holder (Jordanian and non-Jordanian)	Ratio of students to one Jordanian PhD holder	Target no. of PhD holder according to ratio of 1 PhD nurse : 40 students in class room	The difference between the actual no. and the target no. of PhD holders according to ratio of 1 PhD nurse : 40 students in class room
		Jor	Non-Jor					
University of Jordan	1360	16	1	17	80	85	34	-17
Jordan University of Science and Technology	1708	24	0	24	71	71	43	-19
Mutah University	481	3	1	4	120	160	12	-8
Princess Muna College of nursing and allied health professions	527	5	0	5	105	105	13	-8
Al Al-Bayt University	726	3	3	6	121	242	18	-12
Jerash Private University	180	0	4	4	45	0	5	-1
Al-Isra Private University	163	2	1	3	54	82	4	-1
Philadelphia University	531	3	7	10	53	177	13	-3
Al-Ahliyya Amman University	186	0	5	5	37	0	5	0
Hashemite University	1030	12	0	12	86	86	26	-14
Applied Science Private University	1255	3	10	13	97	418	31	-18
Al-Hussein Bin Talal University	49	1	2	3	16	49	1	2
Irbid National University	84	0	2	2	42	0	2	0
Al-Zaytoonah University of Jordan	1122	0	21	21	53	0	28	-7
Zarqa Private University	195	0	5	5	39	0	5	0
Total	**9597**	**72**	**62**	**134**	**72**	**133**	**240**	**-106**

Current available data in the academic year 2008-2009 revealed that the total number of nursing students (first through fourth year) who are studying in the public and private universities is 9,853 nursing students and the total number of PhD nurses is 140 faculty members in addition to 122 master prepared nurses working at Jordanian universities. Findings on the disparity in the percentages of PhD nurses compared to master prepared nurses in 2008 are similar to that in 2007. The PhD holders comprised about only 53.4% (n=140) of all nursing educators in the education sector and the master prepared nurses comprised the majority of faculty members in the public education sector (Table 27).

Table 27 - Numbers and Percentages of PhD Nursing Faculty Members and Master Prepared Nurses in Jordanian Universities in 2008/2009

University	Total no. of PhD nurses	Total no. of MSN nurses	Total no. of PhD + MSN nurses	% of PhD to PhD + MSN nurses	%of MSN to PhD + MSN nurses
University of Jordan	21	20	41	51.2%	48.8%
Jordan University of Science and Technology	20	33	53	37.7%	62.3%
Mutah University	4	5	9	44.4%	55.6%
Princess Muna College of nursing and allied health professions	5	13	18	27.8%	72.2%
Al al-Bayt University	4	9	13	30.8%	69.2%
Jerash Private University	7	3	10	70.0%	30.0%
Al-Isra Private University	6	4	10	60.0%	40.0%
Philadelphia University	12	2	14	85.7%	14.3%
Al-Ahliyya Amman University	5	2	7	71.4%	28.6%
Hashemite University	15	13	28	53.6%	46.4%
Applied Science Private University	7	8	15	46.7%	53.3%
Al-Hussein Bin Talal University	2	0	2	100.0%	0.0%
Irbid National University	5	1	6	83.3%	16.7%
Al-Zaytoonah University of Jordan	21	5	26	80.8%	19.2%
Zarqa Private University	6	4	10	60.0%	40.0%
Total	**140**	**122**	**262**	**53.4%**	**46.6%**

Table 28 shows that the current total ratio of nursing students to all PhD faculty members (Jordanian and non-Jordanian) in the academic year 2008-2009 in Jordan is 70:1; however, the ratio gets worse when we consider only the PhD Jordanian nurses where the ratio goes up to 119: 1.

Table 28 - Numbers, Percentages and Ratios of Nursing Students to PhD Nursing Faculty Members in Jordanian Universities in 2008/2009

University	No. of BSN students in all four years in 2008/2009	No. of PhD nurses		Total no. of PhD nurses	Ratio of students to one PhD holder (Jordanian and non-Jordanian)	Ratio of students to one Jordanian PhD holder	Target no. of PhD holder according to ratio of 1 PhD nurse : 40 students in class room	Target no. of PhD holder according to ratio of 1 PhD nurse : 20 students in class room	The difference between the actual number and the target no. of PhD holders according to ratio of 1 PhD nurse : 40 students in class room	The difference between the actual no. and the target number of PhD holders according to ratio of 1 PhD nurse : 20 students in class room
		Jor	Non-Jor							
University of Jordan	1355	20	1	21	65	68	34	68	-13	-47
Jordan University of Science and Technology	2037	20	0	20	102	102	51	102	-31	-82
Mutah University	520	3	1	4	130	173	13	26	-9	-22
Princess Muna College of nursing and allied health professions	533	5	0	5	107	107	13	27	-8	-22
Al al-Bayt University	761	3	1	4	190	254	19	38	-15	-34
Jerash Private University	201	2	5	7	29	0	5	10	2	-3
Al-Isra Private University	220	3	3	6	37	73	6	11	1	-5
Philadelphia University	535	7	5	12	45	76	13	27	-1	-15
Al-Ahliyya Amman University	202	0	5	5	40	0	5	10	0	-5
Hashemite University	1091	15	0	15	73	73	27	55	-12	-40
Applied Science Private University	121	4	3	7	17	30	3	6	4	1
Al-Hussein Bin Talal University	122	0	2	2	61	0	3	6	-1	-4
Irbid National University	949	1	4	5	190	0	24	47	-19	-42
Al-Zaytoonah University of Jordan	980	0	21	21	47	0	25	49	-4	-28
Zarqa Private University	226	0	6	6	38	0	6	11	0	-5
Total	**9853**	**83**	**57**	**140**	**70**	**119**	**246**	**493**	**-106**	**-353**

If we consider the ratio of faculty members to students of 1:40 in lecture rooms there is still a shortage of 106 faculty members in Jordan to educate the 9,853 nursing students (first through fourth year) who are studying now in the public and private universities in the year 2008 (Table 28). Table 28 shows a severe shortage of faculty members in all universities which varies between one faculty member at Philadelphia University and Al-Hussein Bin Talal University to 31 faculty members at Jordan University for Science and Technology.

This highest ratio of students to one faculty member is reported by the universities with large numbers of nursing students such as Jordan University of Science and Technology followed by Irbid National University, Al-al-Beyt University, Jordan University, and the Hashemite University. Five private universities Jarash, Al-Isra, Al-Ahliya Amman University, the Applied Science Private University and Al-Zarka have adequate numbers of faculty members. These universities are mainly staffed by non-Jordanian faculty members such as Al-Zarka University which is totally staffed by non-Jordanian PhD holders. If we consider the ratio of faculty member to students of 1:20 in laboratories the total shortage mounts up to 353 faculty members in Jordan.

The large student: faculty ratio will not only have an impact on the quality of nursing students but will also have a negative impact on faculty members careers and professional development especially those related to promotion of nursing faculty members. Thus, the projection of faculty members (PhD and master prepared nurses) for Jordanian universities must be identified for the coming 10 years taking into consideration the accreditation criteria for nursing programs. Moreover, master prepared nurses are only allowed to teach in laboratories and clinical settings only.

The high students to faculty member ratio demands huge teaching and supervision responsibilities on nursing faculty members not only in theory courses but also in the clinical areas. This will unfortunately, affect the quality of nurses graduating from the nursing programs as well as the productivity of faculty members on research and development and will definitely affect their careers as acadeciams which might affect the status and image of nursing schools in the universities.

The lack of proper supervision of faculty members and the shortage of nurses in hospitals have amplified the quality of training and supervision of BSN nursing students in the clinical settings. Although more non-Jordanian nurses with doctorate degrees were recruited to the education sector to enable universities to meet the accreditation criteria, all universities still suffer from a lack of nursing faculty members with doctoral degrees.

Thus, the education sector needs to correct the imbalance in the ratio of students: faculty members and the clinical sector must correct itself to provide a conducive learning environment for the students.

Innovative teaching and learning strategies need to be developed at all levels of nursing programs to enhance the quality of education to counter and minimize the negative consequences of the lack of nursing faculty members in universities and clinical settings (31, 32, 33).

Nursing education not only depends on the environment of the universities but it also needs a strong solid training sector for students to ensure minimum safety nursing competencies. Standards on the training and placement of nursing students in clinical settings were emphasized by the International Labor Organization (ILO) at the international level as well as the JNC at the national level (34, 35). A special item was designed for nursing students in the recommendations of the International Labor Conference concerning employment and the working conditions of nursing personnel since 1977.

The country should also go further in their graduate programs (master and PhD programs) to produce more nurses into the nursing profession to cover the market of education and services. However, there is an "unfit" match between the number of faculty members and number of graduate nursing students who need close supervision and guidance on research during their work on their dissertations. Thus, faculty members need to have more time to conduct and publish their own research in order to be promoted and to enable them to be more efficient and effective in graduate education programs in Jordan.

Moreover, specialization in different areas of practice also needs a critical mass of nurses focusing on evidence - based practice to be able to deliver quality services, teaching and training for potential nursing students in the advanced nursing practice. Jordan should focus on the development of specialty nursing programs because of the inadequate numbers of specialized nurses in clinical and critical settings as well as primary health care settings. Costs, distance, family obligations and commitment have always been considered as the main obstacles for many female Jordanian nurses to seek their higher education outside Jordan.

Universities need also to recognize the importance of mentorship programs by utilizing the expertise of RNs in the clinical settings and should support the country's efforts in establishing and institutionalizing nursing specialties in different clinical and critical areas of practice. This will be attained if the education sector ensures quality education and strengthens the nursing competencies of its outputs, the nursing students.

Specialty nursing programs should be established through national programs, a challenge by which we would ensure proper evidence based practice and provide better quality care for attaining the highest possible health level of the Jordanian population.

The quality and excellence in nursing is a circle of all components including education, training, practice, continuing education, re-licensure, conducive environment at the workplace and solid standards of nursing practice and education as well as strong nursing leadership and regulations. Securing enough numbers of general and specialized nurses in the clinical settings, enhances the learning environment of nursing students and strengthens their competencies in the nursing practice.

Nursing Turnover: Numbers and Percentages

The numbers and percentages of nursing turnover (at the different levels) were calculated according to the following formulas:

* The expected number of nurses in 2007 is equal to the number of nursing workforce in 2003 + the total number of nurses who graduated from 2003/2004 - 2007/2008 from Jordanian universities and colleges of nursing.

* The number of dropout nurses in 2007 is equal to the expected number of nurses in 2007 minus the actual number of nursing workforce in 2007.

* Nursing turnover during the period of 2003- 2007 is equal to the

(Number of dropout nurses in 2007 over the expected numbers of nurses in 2007)

Table 29 shows that the total nursing turnover during the period of 2003-2007 was 32.1% (n=5,737).

Table 29 - Nursing Turnover Among Nurses with PhD, MSN , BSN, MW and ADs from 2003 to 2007

Year	PHD	MSN	BSN	MW	ADs	Total no. of nursing workforce
No. of nurses in 2003	49	246	3274	1233	1241	6043
No. of nurses in 2007	149	329	5738	1440	4593	12249
No. of graduated nurses 2003-2007*	NA**	226	5671	562	5384	11843
% of the Differences (2003-2007)	67.1%	25.2%	42.9%	14.4%	73.0%	50.7%
No. of dropout nurses between 2003-2007	0	143	3207	355	2032	5737
Nursing turnover between 2003-2007	0.0%	30.3%	35.9%	19.8%	30.7%	32.1%

*Graduated Jordanian nurses with PhD,MSN, BSN,MW and ADs from 2003/2004-2007/2008
** NA : Not applicable

The highest nursing turnover was reported for BSN nurses which accounted for 35.9% (n=3,207 dropout BSN nurses) followed by AD nurses (n=2,032, 30.7%), master prepared nurses (n=143, 30.3%) and midwifes (n=355, 19.8%).

Projection of Future Supply for Registered Nurses

As a whole, Jordan is experiencing a severe shortage of registered nurses. A growing shortage of RNs has been projected over the next five years based on the ratio of RNs: population at 20:10,000.

Box 8

Assumptions for the projection of RNs for the coming five years (2008-2012)

The following assumptions have been taken into consideration in the projection of RNs for the coming five years (2008-2012).

* The ratio of RNs: population was fixed at 20: 10,000 for the coming five years.
* The expected attrition rate of nurses was estimated at 10% for female nurses and 15% for male nurses over the coming five years.
* The ratio of practicing female to male nurses was estimated at 70%: 30% to meet the demand for the RNs nursing workforce in Jordan.

The percentage of different attrition rates for male to female was based on the following assumptions:

Some female nurses might leave the nursing profession upon marriage or having children or retirement. As for male nurses, many leave the country for better job opportunities or seek other career options outside the nursing profession.

By the year 2012, Jordan will need a total number of 13,040 RNs divided into 3,912 male nurses and 9,128 female nurses based on the ratio of 20 RNs:10,000 population (Table 30).

Table 30 - The Target Numbers of Male and Female RNs from 2008 to 2012

Year	2008	2009	2010	2011	2012
*Population	5901000	6054000	6209000	6364000	6520000
Target no. of nurses based on the ratio 20 RNs:10000 Population**	11802	12108	12418	12728	13040
Target no. of male RNs based on the ratio 20 RNs:10000 Population***	3541	3632	3725	3818	3912
Target no. of female RNs based on the ratio 20 RNs:10000 Population***	8261	8476	8693	8910	9128

*Projected population number by Department of Statistics in Jordan(DOS)
**Based on the ratio of RNs: Population of 20:10000
*** The female to male ratio was fixed at 70%:30%

The total projected number of RNs over the coming five years is shown in Table 31 based on the following formulas:

* *Expected number of female RNs = Number of projected female RNs workforce in 2007 multiplied by the attrition rate of (10%) plus the number of projected female BSN graduates.*
* *Expected number of male RNs =Number of projected male RNs workforce in 2007 multiplied by the attrition rate of (15%) plus the number of projected male BSN graduates.*
* *Target Number of female RNs based on a ratio of nurses : population of 20:10,000.*
* *Target Number of male RNs based on a ratio of nurses : population of 20:10,000.*
* *Shortage of female nurses = Expected number of female RNs minus the target number of female RNs.*
* *Shortage /surplus of male nurses = Expected number of male RNs minus the target number of male RNs.*
* *Total Shortage /surplus in nursing workforce = Shortage /surplus of female nurses plus the shortage /surplus of male nurses.*

Table 31 - Projected Numbers of Male and Female RNs in Jordan from 2008 to 2012

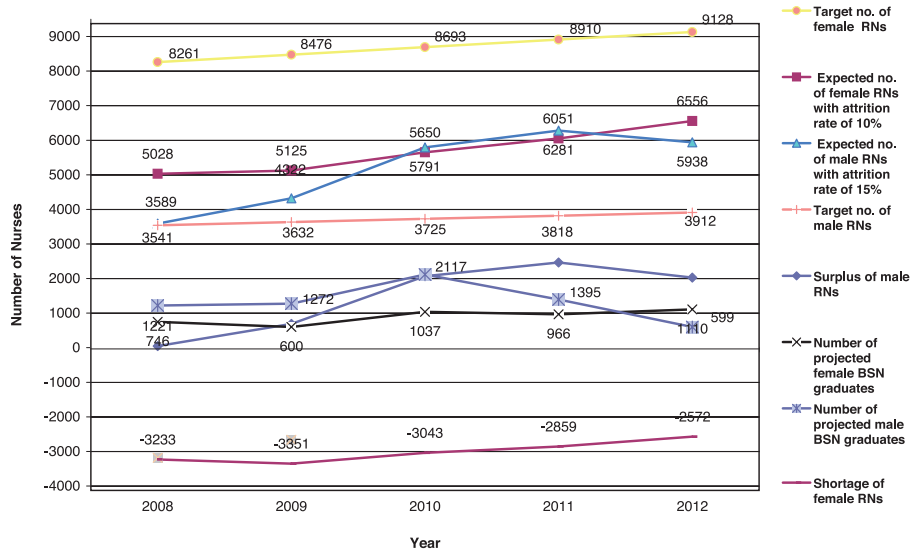
Year	2008	2009	2010	2011	2012
Expected no. of female RNs with attrition rate of 10%	5028	5125	5650	6051	6556
Expected no. of male RNs with attrition rate of 15%	3589	4322	5791	6281	5938
Number of projected female BSN graduates	746	600	1037	966	1110
Number of projected male BSN graduates	1221	1272	2117	1359	599
Target no. of female RNs	8261	8476	8693	8910	9128
Target no. of male RNs	3541	3632	3725	3818	3912
Shortage of female RNs	-3233	-3351	-3043	-2859	-2572
Surplus of male RNs	48	690	2066	2463	2026
Total Shortage in RNs nursing workforce	-3185	-2660	-977	-396	-546

Table 31 shows that there will be a shortage of female registered nurses for the coming five years. The shortage in the number of female RNs will reach its peak in 2009 which amounts to 3,351 female RNs. The shortage ranges between 2,572 RNs in 2012 to 3,351 female RNs in 2009. On the other hand, there will be a surplus of male RNs with a peak in the year 2011 as the surplus amounts to 2,463 RNs. A surplus of more than 2,000 male RNs will continue in 2010 and 2012.

Dealing with the entire nursing shortage is misleading as it veils around 70% of the actual needed numbers of registered nurses which represents the female RN nurses. The actual nursing shortage is rooted in the insufficient number of female RN nurses which is estimated at 2,572 RNs in 2012 to 3,351 female RNs in 2009. Jordan is a country in which about more than 65% of its population are children and women, therefore, being culturally sensitive, it is expected that a matching number of female nurses is required to meet the health needs of women and children.

Figure 2 shows the projected numbers of male and female RNs for 2008 to 2012.

Figure 2 Projected Numbers of Male and Female RNs in Jordan for 2008 -2012



6

Chapter Six

Key Issues and Policy Interventions Framework

An Overview

Jordan is indeed still faced with significant and lingering imbalances in its nursing workforce. Currently, Jordan faces an inadequate supply of new female nursing graduates. The problem of the shortage of female nurses was rooted in the past and will be aggravated in the coming years in the absence of the right scenarios for evaluating the supply and demand of nursing in Jordan.

The nursing shortage in Jordan has a " new look" from previous ones. In the past, shortages resulted from a lack of number of nurses; however, currently there are more nurses but we have a "unique nursing gender problem" with more men in the nursing profession. The nursing gender problem in Jordan is evident in the increasing number of unemployed male nurses which amounted to more than one-thousand male nurses in 2007 and 2008(20).

The National Agenda of Jordan recognized nursing as an important investment in the health care industry (30). The nursing workforce is an industry that we need to recognize as it will be prosperous if we know how to play the" investment game intelligently" to contribute to the economy of the country. High quality nurses and a solid nursing education system as well as strong nursing leadership are the key areas for nursing excellence in Jordan.

According to the WHO report in 2006 in meeting the challenge of health demands and problems, "the workforce goal is simple - to get the right workers with the right skills in the right place doing the right things - which will help in responding to the crisis, meeting current gaps and anticipating the future" (1). The WHO report on "Working together for health" in 2006 laid out a "working lifespan" approach to the dynamics of the workforce. It proposed a simple approach for a working lifespan at entry - workforce - exit stages.

Box 9

The WHO report on "Working together for health" in 2006.

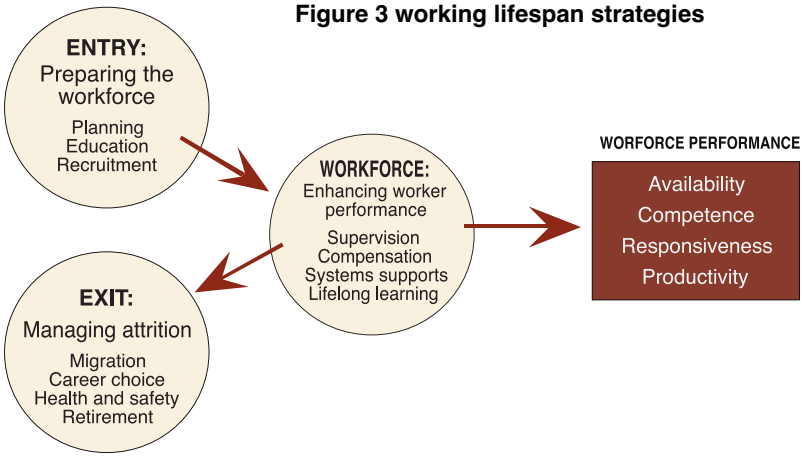
"This report lays out a "working lifespan" approach to the dynamics of the workforce. It does so by focusing on strategies related to the stage when people enter the workforce, the period of their lives when they are part of the workforce, and the point at which they make their exit from it. The road map (see figure 3) of training, sustaining and retaining the workforce offers a worker perspective as well as a systems approach to strategy. Workers are typically concerned about such questions as: How do I get a job? What kind of education do I need? How am I treated and how well am I paid? What are my prospects for promotion or my options for leaving. From policy and management perspectives, the framework focuses on modulating the roles of both labor markets and state action at key decision- making junctures:

* Entry: preparing the workforce through strategic investments in education and effective and ethical recruitment practices.

* Workforce: enhancing worker performance through better management of workers in both the public and private sectors.

* Exit: managing migration and attrition to reduce wasteful loss of human resources"

Figure 3 working lifespan strategies



World Health Organization, The World Health Organization Report in 2006. Geneva.

The public, military and private health sectors, as employers of nurses should play a significant active role in the improvement of conditions of employment and quality of work life of nursing personnel. Policies concerning nursing education, services and nursing personnel should be formulated within a framework policy of a general health strategy and within the resources available for health care as a whole, to provide the quantity of nurses to provide the right quality nursing care.

The results of the study reflect a pressing need to propose policy framework and solutions to key issues in the nursing workforce. The ICN Policy Interventions Framework was adopted and modified to conclude key policy issues and interventions from the nursing workforce study in Jordan. Imbalances in the nursing workforce in Jordan, main factors affecting the demand and supply of the nursing workforce, and the Policy Interventions Framework will be highlighted in the following sections.

Imbalances in The Nursing Workforce in Jordan

It is evident that the dynamics of supply and demand are out of balance in Jordan with the growing gap of the nursing shortage in Jordan. Data from this study revealed different imbalances related to the nursing workforce in relation to gender, geographic distribution , educators/students ratio, supply/demand, public/private sectors, and others.

All health care sectors must improve their working environment and correct their imbalances in relation to the nursing workforce to contribute to the advancement and quality of nursing practice and care.

The study revealed the following imbalances in the nursing workforce in Jordan:

* **Gender imbalances** related to disparities in the number of male to female ratio among nurses with baccalaureate degrees.
* **Geographic imbalances** of nurses distribution in the middle, north and south regions of Jordan.
* **Nursing workforce and graduates of BSN programs imbalances** related to disparities between the number of nursing workforce in 2007 and the numbers of nurses who had graduated from the baccalaureate nursing programs during the period of 2003 to 2007.
* **Nurses' supply/demand imbalance** as the supply of nurses in Jordan fails to keep pace with the increasing demand for nursing care.
* **The public/private imbalance** is associated with differences in the number of nurses allocated in the public and private sectors.

* **Educators/students ratio imbalances** related to the fact that the supply of faculty members in universities fails to keep pace with the increasing number of nursing students which jeopardizes the quality of nursing education in theory and practice.
* **Distributional and service imbalances** related to disparities in the number of nurses allocated to hospitals and health care centers.
* **National faculty members and foreign faculty members imbalances** related to disparities in the numbers of PhD Jordanian nurses versus the number of non-Jordanian PhD nurses in the education sector.
* **PhD nurses and master prepared nurse imbalances** related to disparities in the number of PhD holders and master prepared nurses in the education sector.

Main Factors Affecting the Supply of the Nursing Workforce

Although Jordan has a well-structured health care system, its nursing workforce still faces many challenges. Problems in the nursing workforce will lead to inappropriate staffing practices such as understaffing which poses serious threats to the health of people. The study revealed the following main factors that affect the demand and supply of the nursing workforce:

*** Shortages in female students' enrollment in schools of nursing.**

Currently, Jordan faces an inadequate supply of new female nursing graduates. Women in Jordan continue to have more career options other than nursing which might affect the production of more new female nurses. Private universities reported insufficient number of female nurses.

Inability to recruit enough female students into nursing programs might jeopardize the nursing programs in the private universities.

*** Shortages in faculty members in the education sector.**

Shortages are not limited only to practicing nurses, but there is a critical shortage in nursing educators which will constrain any attempts to increase the number of nurses being educated or to ensure solid and quality educational programs in nursing. This will jeopardize the country's efforts to improve the quality of higher education in Jordan and will automatically affect the universities efforts to meet the accreditation criteria for nursing programs.

The inability to recruit and secure enough faculty members may limit the ability of nursing schools to enroll more students into nursing programs.

*** Insufficient resources and clinical placement for nursing students.**

*** Inappropriate staffing practices that lead to understaffing such as in health care centers.**

The Policy Interventions Framework

Data-based evidence helps in formulating reliable health policy that has a positive impact on health care systems, human resources, health administration, education and patient outcomes. It will also help in developing strategies to strengthen the nursing workforce including workforce planning, recruitment and retention, delivery of quality care, and strengthening leadership and education. Therefore, to focus on the outcomes of this study, the key issues and related interventions will be articulated within a Policy Interventions Framework. The ICN model of the Policy Interventions Framework was adopted and modified to conclude key policy issues and interventions from the nursing workforce study in Jordan in 2007 (2). The Policy Interventions Framework aimed at supporting informed decision making and prioritization of key issues and interventions for the nursing workforce in Jordan. The ICN policy framework identified the following four main components to address nursing shortages at the global level: workforce planning, recruitment and retention, deployment and performance as well as utilization and skills mix.

Drawing from the findings of the Jordanian nursing workforce study, ten components of the Policy Interventions Framework were identified to address challenges of the nursing workforce in Jordan. Main interventions for sustained improvement within each component were highlighted. Therefore, the Policy Interventions Framework highlights the following components and interventions in Jordan:

* Recruitment and retention
* Workforce planning
* Job opportunities
* Workplace environment
* Data-based evidence system
* Quality of nursing education
* Faculty members at the schools of nursing
* Nursing specialty areas
* Nursing leadership
* Nursing research

Component Number One: Recruitment and Retention

Policy Issues and Interventions

* Develop a recruitment and retention strategy.

* Provide more scholarships for female nursing students by increasing the scholarship funds for Princess Muna Scholarship Fund and by allocating 500 annual scholarships for female nursing students from the student fund of the Ministry of Higher Education & Research. Ensure the commitment and contribution of the private health care sector to the scholarship fund.

* Expand educational opportunities for potential female students, including support for lower-income students.

* Recruitment of bright new female high school students to universities and colleges of nursing.

* Establish remedial nursing education programs for female graduates from other disciplines of baccalaureate programs (e.g. science, allied health programs, sociology etc...).

* Strengthen the career paths of nurses by expanding the opportunities of associate degree and diploma nurses to bridge with the BSN programs.

* Recruitment of retired nurses and inactive nurses (who have left the nursing profession).

* Adopt strategies to improve the image of nursing and allocate appropriate funds by the government for the continuation of the national awareness campaign on nursing.

Component Number Two: Workforce Planning

Policy Issues and Interventions

* Conduct regular needs assessment surveys for nurses in education and clinical settings.

* Bridge the supply and demand issues within the education sector.

* Develop a general model for workforce planning and projection of nurses in Jordan as well as an advanced model based on patient classification and acuity system.

The time lag between beginning to educate new nurses and their qualification and entry into the labor market should be taken into consideration in workforce planning. Planning should also take into consideration the following:

-The number of nurses needed to meet projected demand.

- Skills and competencies required to meet projected demand.

* *Develop appropriate mechanisms for ensuring strong basic education and training programs.*

* *Develop appropriate mechanisms for continuous professional development / lifelong learning programs for nurses.*

* *Projection of nurses should take into consideration nurses needed for prevention, primary health care and continuous care in addition to hospitals and education sectors.*

* *Establish a mechanism to identify nurses working outside the country in collaboration with the Ministries of Labor and External Affairs.*

* *Develop a solid nursing licensure system.*

* *Secure/ maintain equitable distribution of nurses across the regions and the governorates.*

Component Number Three: Job opportunities

Policy Issues and Interventions

Create job opportunities for unemployed and graduating male nurses :

* Provide training opportunities for male nurses by the RMS, the MOH, private hospitals and other related health care sectors through sharing the costs of training with the Ministry of Labor for the coming 3- 4 years.

* Secure and monitor employment opportunities for male nurses outside the country by tracking job opportunities for male nurses outside the country in collaboration with the Ministries of Labor and External Affairs.

* Capacity building of unemployed male nurses and newly graduating nurses prior to working outside the country in the areas of medical-surgical, emergency, ethical issues, management, documentation, communication, critical care, operating theatre, English, etc....

* Revise health policies related to school health programs and occupational health programs (factories, firms, etc....) to facilitate the employment of male nurses.

Component Number Four: Workplace Environment

Policy Issues and Interventions

* Ensure that nurses and midwives in the public and private sectors, are motivated by adequate financial and non financial incentives, and supported by safe and well-equipped working environments to enhance workforce productivity and retention.

* Strengthen governance and shared responsibility in nursing.

* Create conducive work environments that attract new nurses and retain experienced nurses. Workload, safe practice, salary and other working conditions need to be improved in clinical and educational settings.

* Adopt a national policy on the minimum nurse-to-bed ratio as well as nurse to patient ratio and/or patient classification system in addition to the development of annual staffing plans in hospitals and all health care sectors.

* Adopt flexible work hour options such as part-time or flex hours.

* Adopt national policies for capacity building of the nursing workforce in different areas of nursing practice including leadership and management skills.

* Establish career ladders for practicing nurses (e.g. the career ladder in the RMS).

* Support continuing education in the workplace.
* Establish solid incentive systems to attract nurses to work in critical areas, underserved areas and night shifts.
* Develop staff performance appraisal systems.
* Ensure better distribution of the nursing workforce in hospitals, health care centers and other related services.
* Achieve a better balance in the number of health care providers in the different health sectors to enable nurses to deliver better quality of nursing care .
* Evaluate the competencies, scope of work and impact of nurses on the quality of health care.

Component Number Five: Data-Based Evidence System

Policy Issues and Interventions

* Establish a data-based evidence system for the nursing workforce in Jordan to inform policy decisions in nursing and to guide health policies.
* Identify the right numbers and qualifications of nurses working outside Jordan.
* Provide enough support and funding for the JNC to establish a database system for the nursing workforce.

Component Number Six: Quality of Nursing Education

Policy Issues and Interventions

* Strengthen educational institutions through faculty development, curricular innovations, and solid research to produce qualified graduates to meet the health needs of the country .
* Improve the quality of nursing education:
  - Develop innovative teaching and learning strategies at all levels of nursing education programs.
  - Improve the competencies of nursing students.
  - Evaluate the clinical practice and placement sites of nursing students.
  - Establish a national simulation center for basic and advanced nursing education and practice.

- Integration of simulation and new lab technologies in the nursing curriculum.
- Revision and improvement of the nursing curricula focusing on clinical and communication skills as well as current issues on nursing practice such as disaster preparedness, gerontology, home care, customer service, millennium development goals, ethics, policy issues, communication, leadership and management skills, etc....

* Increase the number of faculty members in nursing by securing scholarships for doctoral degrees at different international universities with more focus on clinical education (need a national policy for all universities).
* Increase the career path of specialization in clinical nursing.
* Adhere to the student enrollment policy related to the ratio of 70% female to 30 % male students in BSN programs.
* Strengthen nursing education by building the capacity of nursing schools to handle the increasing number of nursing students.
* Adopt a national policy on a paid 6-months to one-year clinical training/internship for new nurses graduating from the universities to strengthen their clinical skills in different areas of practice at the MOH, the RMS and the private sector.
* Improve faculty member's skills in nursing research in the different areas of nursing education, practice and development.
* Develop solid continuing education program for nurses.
* Develop solid regulations related to the role and scope of work and practice for nurses and midwives.

Component Number Seven: Faculty Members at the Schools of Nursing

Policy Issues and Interventions

* Develop action plans to scale up the number of Jordanian nurses with PhDs.
* Establish policies related to increasing scholarships for PhDs and master degrees in nursing (both internal and external scholarships need to be taken into consideration).
* Public and private universities need to allocate enough money for nursing scholarships at the PhD level.
* Budgets of universities must have a clear 10-year action plan to scale up the number of nurses with PhDs to enhance the quality of nursing education.

* Establish solid staff development programs as well as leadership programs for faculty members.

* Strengthen the clinical skills of faculty members and preceptors to improve nursing students' competencies and skills in the clinical settings.

Component Number Eight: Nursing Specialty Areas

Policy Issues and Interventions

* Develop an action plan to scale up the number of nurses with specialty areas through certification and higher education.

* Identify priority areas for specialties in nursing practice in Jordan.

* Develop modules/ curricula for the different specialty areas in nursing.

* Recognize a status for nursing specialties in hospitals and establish a special cadre for specialized nurses in hospitals.

* Develop national guidelines for competencies in nursing specializations.

* Develop mechanisms to support nurses seeking their specialty certificates/degrees in the public and private hospitals.

* Provide special training for nurses in the advanced nursing roles.

* Provide special advanced mentorship training programs for nurses in the clinical settings to mentor nursing students in post basic and higher education programs.

Component Number Nine: Nursing Leadership

Policy Issues and Interventions

* Ensure effective nursing leadership:

  Leadership development is a crucial issue for sustained development and improvement of nursing in the education and practice sectors. Effective nursing leadership improves the clinical and the managerial aspects of utilizing the skills and competencies of nurses and students.

* Strengthen the leadership programs for practicing nurses.

* Develop leadership programs for faculty members and nursing educators.

* Develop leadership programs for nursing students.

Component Number Ten: Nursing Research
Policy Issues and Interventions

* Conduct nursing research to facilitate informed policy decisions and foster research among nurses in Jordan.

* Provide support for the collection and analysis of data related to nursing and midwifery in Jordan.

* Develop a national nursing information system to assist in making informed policy decisions.

*Researchers need to focus on nursing education, practice, administration and leadership such as:

- Nature and scope of the nursing practice.
- Nature and scope of the nursing shortage.
- Improve work environments.
- The quality of nurses' work life.
- Nurses competencies, satisfaction, burnout, trust in management, etc...
- Leadership styles among nurses in Jordan.
- Studies on staff utilization, workload-based and staffing norms.
- Shortage of nurses and its relation to patient outcomes.
- Carry/conduct evidence based studies on nursing practices and care.
- Characteristics of the health workforce.
- Workforce policy and planning, including regulation.
- Issues of supply and demand in health care.
- Positive practice environments and organizational performance.
- Recruitment and retention; addressing mal-distribution and migration of nurses.
- Nurse retention and workforce issues.
- Best practices in the workplace.
- Evaluate the competencies, scope of work and impact of nurses on the quality of health care.
- Evaluate protocols and procedures of nursing care.

To operationalize and revive the policy framework, strong commitment is required through full coordination across all areas and sectors, solid interventions and actions based on evidence of best practices, and the clarity of roles of all health care providers (nurses, doctors, etc....). The ICN report stressed up on the fact that the framework components and associated policy interventions are interdependent and it requires strong leadership and involvement of all stakeholders.

Conclusion

A total of 7,842 RNs were working in Jordan in 2007 which comprises only 64% of the needed number of RNs for that year. Currently, Jordan faces an inadequate supply of new female nurse graduates. In the academic year of 2008-2009, male BSN nursing students comprise the majority (60%) of nursing students in Jordan.

It is evident that the dynamics of supply and demand are out of balance in Jordan with the growing gap of the nursing shortage. Imbalances of the nursing workforce related to gender, geographic, nurse graduate, educators / students ratio, supply / demand, public / private, faculty members / educators, and distributional / institutional imbalances. The problem of the shortage of female nurses was rooted in the past and will be aggravated in the coming years in the absence of the right scenarios for evaluating the supply and demand of nurses in Jordan. Shortages are not limited only to practicing nurses, but there is a critical shortage in nursing educators which will jeopardize the country's efforts to improve the quality of higher education in Jordan that will automatically affect the universities efforts to meet the accreditation criteria for nursing programs and will impact negatively on the health of the Jordanian population .

The critical key issues and related interventions have been identified and articulated within a Policy Interventions Framework to address challenges of the nursing workforce in Jordan. The Policy Interventions Framework highlights the following components: Recruitment and retention, Workforce planning, Job opportunities, Workplace environment, Data-based evidence system, Quality of nursing education, Faculty members at the schools of nursing, Nursing specialty areas, Nursing leadership and Nursing research.

Improving nursing workforce policies, working environment and correction of the imbalances in the nursing workforce are the responsibility of all policy makers and all stakeholders to advance the health care sector and promote the highest level of quality of care in Jordan.

As mentioned before, instability in the supply of nurses to meet the health care demands of the populations they serve is a serious threat to the quality of care provided to people (2, 3, 4, 5). Educational and clinical sectors including private, public and military as well as other health care sectors should correct their imbalances in relation to the nursing workforce and improve nursing education, practice and working environment and conditions to ensure quality and productive health care that is responsive to people’s needs.

Since the education sector is the only producer of RNs in Jordan, therefore, universities should be envisioned as" a demand led organization" that act collectively within a strong regulatory system in delivering a quality nursing workforce and programs.

On the other hand, a bridge should be provided for Jordanian male nurses to be absorbed within the global health market. This is an opportunity that should be managed very well, otherwise it will transform into a wasteful loss of human resources and investments.

Unfortunately, the nursing workforce body in Jordan is mainly embedded within hospitals. Primary health care has moved again to the top of the agenda of the World Health Organization. The 2008 World Health Report "Primary Health Care: Now More Than Ever" acknowledges that primary health care (PHC) has remained the benchmark for most countries' discourse on health as it provides rational, evidence-based and anticipatory responses to health needs and to social expectations (36). The renewed PHC reemphasizes the "right to the highest attainable level of health", maximizing equality and solidarity" while being guided by "responsiveness to people's needs" (36). According to the WHO, the reforms necessary to refocus the health system towards PHC include reforms in universal coverage, health service delivery, leadership and public policy.

Thus, our nursing workforce planning for health care providers must cover all health care levels which include prevention, primary, secondary and tertiary levels in an efficient, equitable and effective manner. The changes in demography and epidemiology of diseases poses serious challenges to the health care system in Jordan.

Our health care system should "regain its balance", it should "act more healthy", and should "engage with reality."

It is no longer acceptable to look through one eye that captures only the therapeutic scene - a money drainage path. We need to use both eyes to scan and screen the full health scene and then we will recognize the importance of the preventive and primary health care path-the less traveled road. By acknowledging the preventive and primary health care, we will be able to effectively and efficiently utilize not only female RNs, but also male RNs in Jordan. These changes warrant that better educated and skilled nurses are needed to deliver health care outside the hospital walls and boundaries.

Nursing excellence demands first class nurses and first class education and practice systems that invest and build on our basic building blocks in caring for people and revive them to fully shape the meaning and process of caregiving as well as to strengthen our knowledge and competencies to ensure the highest level of quality and humane care for individuals, families and communities.

The critical analysis of the nursing workforce in Jordan, throughout the chapters of this book, provides nurses with knowledge on key nursing issues and policy framework to help them use their own vision and courage to influence and shape the national health policies. It provides actionable Policy Interventions Framework for nurses at all levels regardless of their qualification and career stage. Nurses should know how to advocate change in the workplace and public policies that support nursing and healthy communities.

Therefore, this critical analysis of the nursing workforce and the identification of key policy issues and the Policy Interventions Framework will help to initiate the type of critical dialogue that nurses must then promote in their own workplaces (hospitals, universities and health care centers), professional organizations and in their communities as well as at the national, regional, and global levels.

By educating nurses about the crucial issues related to the nursing workforce, education and practice; it will give them the information essential to informed action. And by encouraging nurses to think critically about what is happening in the nursing and health care domains it will help them clarify their own views. Nurses must become vocal about the importance of their work, education, lifework, environment, career and quality of care. They must become more assertive in sharing their insights into the meaning and process of caregiving with the public and policy makers.

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ACRONYMS

ADs Associate Degree nurses

BSN Bachelor's degree in Nursing Science

ICN International Council of Nurses

ILO International Labor Organization

JNC Jordanian Nursing Council

JU University of Jordan

JUST Jordan University of Science and Technology

MOH Ministry of Health

MOHE Ministry of Higher Education and Research

MSN Master Degree in Nursing Science

MW Midwives

NGOs Non Governmental organizations

PHD Doctorate degree in Nursing

PNs Assistant/ Practical nurses

RMS Royal Medical Services

RNs Registered Nursing

WHO World Health Organization