
Workforce needs of Health Professionals in Kuwait

Part II - Nurses

ABSTRACT

Background: The long-term health plan of the Ministry of Health for human resources development should meet the expected future demand for health care professionals. Periodic review of supply and demand for healthcare personnel should be undertaken in the light of emerging variables such as projected population, economic growth, and healthcare strategies.

Objectives: The aims of the study were to: (1) describe the size of the workforce of nurses in Kuwait during 1994-2004; (2) project the future demand of nurses, with special reference to the supply of Kuwaiti nurses during the years 2005 to 2020.

Methods: Local and international data on demand and supply of nurses were retrieved. Data on population and supply of nurses during 1994 to 2004 were used to project the future demand of nurses during the years 2005 to 2020. Population projections were derived using an exponential average annual population growth rate. The future need of nurses was projected using the average nurse: population ratio during 1994 to 2004, of one nurse to 230 population (equivalent to 4.36 nurses: 1000 population). The projected number of Kuwaiti nurses at a given year was calculated by decrementing the number of Kuwaiti nurses of the previous year by -1.21%, the average decrement

rate of Kuwaiti nurses during the past decade. Projections for the demand of nurses were also computed based on the UK ratio of 4.97 nurses: 1000 population, which is equivalent to one nurse to 201 population.

Results: The average decrement rate of -1.21% per annum for Kuwaiti nurses indicates that the number of Kuwaiti nurses is declining. There is a substantial gap between the numbers of Kuwaiti and non-Kuwaiti nurses. This gap is expected to widen with time in view of the decline in the number of Kuwaiti nurses. Of the total demand of nurses in year 2005, Kuwaiti nurses constitute 8.9%. The supply of Kuwaiti nurses is projected to decline further, to 5.6% in year 2020. The disparity between the number of Kuwaiti nurses available and total demand for nurses is expected to become wider if the Kuwait health authorities were to improve the nurse: population ratio to the values that exist in the developed countries such as the UK.

Conclusion: It is unlikely that Kuwaiti will achieve self-reliance with respect to the supply of nurses by the year 2020. On the contrary, it is expected that the gap between demand for nurses and the supply of Kuwaiti nurses would progressively increase in view of the projected decline in the numbers of Kuwaiti nurses that will be available.

INTRODUCTION

Workforce planning for health is the process of estimating the required health workforce needed to meet future health service commitments and the development of strategies to meet them. Health workforce planning is essentially aimed at balancing workforce supply with the requirements. It involves ensuring that the right practitioners are in the right place at the right time with the right skills. It should include an understanding of the issues and policy levers that have an effect on workforces, and needs to be integrated with education planning, ser-

vice planning and financing, and human resources management functions.

There are six important steps involved in the health workforce planning process: 1) setting objectives, scope and approach; 2) describing the current workforce and current requirements, including provision of services to the population; 3) evaluating the adequacy of current workforce supply; 4) predicting the future workforce supply and future workforce requirements; 5) modeling a range of projection scenarios; and 6) developing strategies to balance workforce supply with workforce requirements.

Nurses are the cornerstone of a health-care system, which at present faces many challenges and problems. However, many countries have reported difficulties in recruiting and retaining a content nursing workforce.

The Australian Health Workforce Advisory Committee (AHWAC) has concluded that the number of nurses will not be sufficient to meet projected demand.¹ O'Connor has proposed methods for modeling nursing workforce supply.²⁻⁴

For several years, the government of Canada and the healthcare authorities have recognized that the healthcare system faces a crisis related to the insufficiency in the nursing workforce.^{5, 6}

The evidence of work overload is not difficult to find. Nurses report that they are expected to perform a variety of duties at the same time, including attending to a sick patient.⁷ Fewer nurses than the required number doing more jobs in more intense, complex environments results in work overload.⁸⁻¹⁰ The physical and mental strain of overload brings on the astonishing levels of injury, illness and burnout that have affected employment in nursing in recent years. Furthermore, researchers have suggested that nurses suffer the highest levels of stress among all categories of health professionals.¹¹

According to Baumann and colleagues, "research has made it clear that problems with nurses' work and work environments, including stress, heavy workloads, long hours, injury and poor relations with other professions, can affect their physical and psychological health. Research across occupations has shown long periods of job strain affect personal relationships and increase sick time, turnover and inefficiency".⁹ In 1994, O'Brien-Pallas, Baumann and Ville-neuve¹² described factors contributing to job satisfaction among nurses. Work overload compels nurses to provide increased overtime duties in an environment of insufficient staffing, and the resultant strain frequently leads in turn to illness and injury among nurses. The factors influencing job satisfac-

tion and retention of nurses have been studied intensely and repeatedly for over 20 years.

The objective of healthcare services planners is to provide a workforce with the skills needed rather than one delineated by professional boundaries. Recruitment should not be increased at the expense of maintaining appropriate standards for patient care. There is a need to move towards a wholly trained workforce with integrated career pathways. This must be supported by rigorous attention to maintaining standards.¹³ Workforce planning has traditionally focused only on the numbers of nurses required. Commissioning continuing professional education has now been modified to the new Workforce Development Confederations (WDCs).¹⁴

Nurse-to-population ratios have been used as an indicator of the local healthcare needs and for comparison with the situation in other countries when planning the demand for nurses. These ratios constitute effective tools for comparison between various countries, especially with regard to relative access to health services.¹⁵

The Faculty of Allied Health Sciences and Nursing of Kuwait University was established as an independent faculty under the umbrella of the Health Sciences Centre in June 1982. In June 2001, the Kuwait University Council issued a decree to transfer the Nursing program to the College of Health Sciences, Public Authority for Applied Education and Training. The last cohort of nursing students graduated from the University in 2004.¹⁶ Besides, the College of Health Sciences, Public Authority for Applied Education offers a Diploma in nursing program of 2 years' duration and a Bachelor's degree in nursing program of 4 years' duration to students who have completed high school education. In addition, students who have completed intermediate school education have the opportunity of entering a 3 year Diploma in nursing program at the Institute of Nursing, Public Authority for Applied Education and Training.

OBJECTIVES

1. Describe the size of workforce of nurses in Kuwait during the period 1994-2004
2. Project the future demand of nurses as well as the supply of Kuwaiti nurses during the years 2005 to 2020.

METHODS

Local and international data on demand and supply of nurses were retrieved. Local sources included Department of Nursing Licensing, Department of Statistics and Medical Records, Ministry of Health.¹⁷ International sources consulted were World Health Organization¹⁵, and the Nursing Workforce Standing Advisory Committees reports of USA, UK, Canada and Australia.^{1,4,5,13,14,18}

Data on population and supply of nurses for the past decade (1994 to 2004) were used for assessing the size of the workforce of nurses, and projecting the future demand during the years 2005 to 2020. Inevitably, projecting over such a long interval could be prone to error since both supply and demand depend on future unforeseen trends in a number of different areas, many of which are unpredictable. In addition, considerable developments are expected to occur in the healthcare delivery system in Kuwait in the future. Furthermore, changes in healthcare policies or medical education strategies can grossly affect demand and supply of nurses as well as other categories of health professionals.

Population projections of the years 2005 to 2020 were derived from the population of the year 2004 (Department of Manpower Planning and Statistics) using an exponential average annual population growth rate. The average nurse to 1000 population ratio for the period 1994 to 2004 was 4.36 (Table 1). This ratio, which is equivalent to one nurse to 230 population, was used to project the future need of nurses. The number of nurses needed at any given year was estimated by dividing the estimated population of that year by 230 (the estimated one nurse to population ratio mentioned earlier).

The projected number of Kuwaiti nurses at a given year was calculated by decre-

menting the number of Kuwaiti nurses of the previous year by -1.21%, the average annual decrement rate of Kuwaiti nurses during the past decade (see page 26 Appendix Table 3). The disparity between the projected number of nurses needed and the number available was calculated together with their percentages for each year. Similar projections for the demand of nurses was computed based on the UK ratio of 4.97 nurses per 1000 population (equivalent to one nurse to 201 population).

RESULTS

Table 1 presents the actual population and supply of nurses in Kuwait during 1994 to 2004 for Kuwaiti and non-Kuwaiti nurses. The table also shows the nurses to 1000 population ratios, which were calculated by dividing the number of nurses in service by the respective population size, and then multiplying the result by 1000. The average nurse to 1000 population ratio per annum was 4.36, equivalent to one nurse to 230 population. The average rate per annum for Kuwaiti nurses was declining (-1.21%), while for non-Kuwaiti nurses it was growing (2.62%). Figure 1 displays the supply of nurses that existed up to 2004 and the projected supply until 2020 in Kuwait. It is evi-

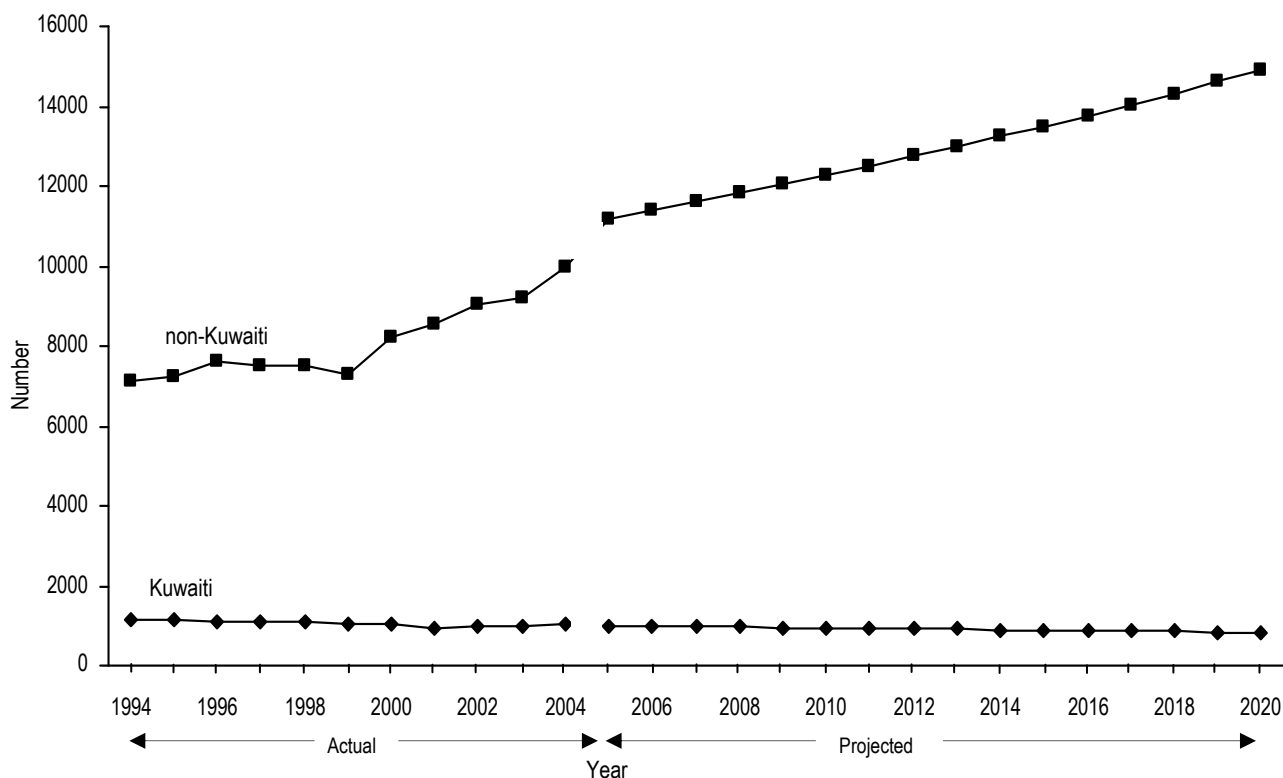
Table 1. Actual supply of nurses in Kuwait, 1994 – 2004

Year	Total population	Actual number of nurses in service			Nurses to 1000 population ratio
		K	NK	Total	
1994	1,620,086	1152	7117	8269	5.10
1995	1,801,797	1128	7208	8336	4.63
1996	1,894,362	1119	7599	8718	4.60
1997	1,979,689	1110	7487	8597	4.64
1998	2,027,103	1103	7485	8588	4.24
1999	2,107,195	1057	7286	8343	3.96
2000	2,189,668	1014	8231	9245	4.22
2001	2,274,980	929	8572	9501	4.18
2002	2,363,325	971	9065	10036	4.25
2003	2,484,334	1008	9193	10201	4.11
2004	2,522,451	1017	9999	11016	4.37

K= Kuwaiti, NK= Non-Kuwaiti

Source: Health Kuwait 2004, Edition 40, Health & Vital Statistics Division, Department of Statistics & Medical Records, Ministry of Health, Kuwait.

Figure 1. Growth in supply of nurses in Kuwait, 1994-2020



dent that the gap between Kuwaiti and non-Kuwaiti nurses during the past decade was substantial, and is likely to continue to be so as long as the rate of Kuwaiti nurses is declining. In 2004, the Ministry of Health was the main employer for nurses (89.96%), while the private sector employed only 10.04% of nurses. The ambitious plans for development in both public and private healthcare sectors would further increase the demand for nurses.

Table 2 depicts the nurse to 1000 population ratios, and population to one nurse ratios in various countries. The nurse to 1000 population ratio in Kuwait (4.36) is below the ratio of any of the developed countries.

Table 3 shows the projected numbers of nurses needed during years 2005 to 2020. Based on the nurse: population ratio of 4.36, the projected total demand of nurses will increase from 11172 in year 2005 to 14897 in year 2020, while the projected number of Kuwaiti nurses will decrease from 1005 in 2005 to 837 in 2020 based on a declining rate of -1.21%.

It is estimated that the disparity between the projected number of nurses

needed and projected number of Kuwaiti nurses supplied will increase from 91.0% in 2005 to 94.38% in 2020 (Table 3 and Figure 2). Table 4 presents the projected number of nurses needed based on the nurse: population ratio of UK (4.97), which is equivalent to one nurse to 201 population. Accordingly, the number of nurses needed is projected to be 12784 in year 2005 and would reach 17046 in 2020, while the projected number of Kuwaiti nurses will be 1005 in year 2005, decreasing to 837 in 2020. The disparity between total demand and the supply of Kuwaiti nurses will be minimally affected as it is expected to decrease from 92.14% in 2005 to 95.1% in 2020 (Figure 3).

DISCUSSION/CONCLUSIONS

This study was carried out with the objective of examining the supply and demand of nurses in Kuwait. The demand was based on a nurse to population ratio of 1: 230 (equivalent to 4.36 nurses per 1000 population, which was the average ratio for the past decade). Analysis of the current nursing workforce and projected numbers during the

Table 2. Nurses to 1000 population ratio and population to one nurse ratio in various countries

Country	Nurses: 1000 population	Population: one nurse	Year of publication	Source*
Gulf Countries				
Kuwait	4.37	229	2004	Health Kuwait
Saudi Arabia	3.04	329	2001	WHO
United Arab Emirates	4.18	239	2001	WHO
Bahrain	4.13	242	2001	WHO
Qatar	4.93	203	2001	WHO
Oman	2.98	336	2001	WHO
Middle East Countries				
Egypt	2.76	363	2000	WHO
Syrian Arab Republic	1.94	515	2001	WHO
Jordan	2.75	364	2001	WHO
Iran	2.46	407	1998	WHO
European Countries				
Switzerland	8.34	120	2000	WHO
Denmark	9.72	103	2002	WHO
Netherlands	13.34	75	2001	WHO
Belgium	10.74	93	2001	WHO
France	6.67	150	2001	WHO
Germany	9.51	105	2001	WHO
Italy	4.46	224	2001	WHO
Russian Federation	7.87	127	2001	WHO
United Kingdom	4.97	201	2000	WHO
Japan	8.21	122	2000	WHO
Australia	7.75	129	2001	WHO
Canada	10.1	99	2001	WHO
United States	7.73	129	2000	WHO

*WHO, <http://globalatlas.who.int/GlobalAtlas/DataQuery>
Health Kuwait 2004, Edition 40, Health & Vital Statistics Division,
 Department of Statistics & Medical Records, Ministry of Health, Kuwait.

period 2005 to 2020 shows that the supply of Kuwaiti nurses until the year 2020 will be far from meeting the projected demand. By the year 2020, Kuwaiti nurses are expected to meet only 5.6% of the demand for nurses.

If the nurse: population ratio were to be improved to the level in UK (one nurse per 201 population), the deficit between the demand for nurses and the supply of Kuwaiti nurses will be even worse, reaching 4.9% by 2020. Other factors that would increase the demand for nurses further are the new healthcare services which are either being implemented or being planned by the gov-

Table 3. Projected number of nurses needed in Kuwait for the years 2005-2020

Year	Estimated total population ¹	Projected number of nurses needed ²	Projected number of Kuwaiti nurses ³	Disparity between total demand and Kuwaiti nurses ⁴	
				Number	%
2005	2,569,516	11172	1005	10167	91.00
2006	2,617,685	11381	993	10388	91.27
2007	2,666,986	11596	981	10615	91.54
2008	2,717,450	11815	969	10846	91.80
2009	2,769,109	12040	957	11083	92.05
2010	2,821,997	12270	945	11325	92.30
2011	2,876,145	12505	934	11571	92.53
2012	2,931,591	12746	923	12070	92.90
2013	2,988,369	12993	911	12335	93.12
2014	3,046,515	13246	900	12605	93.34
2015	3,106,069	13505	890	12880	93.54
2016	3,167,069	13770	879	12891	93.62
2017	3,229,555	14042	868	13174	93.82
2018	3,293,567	14320	858	13462	94.01
2019	3,359,150	14605	847	13758	94.20
2020	3,426,347	14897	837	14060	94.38

^{1,2,3,4} Refer to appendix (page 26) for the formula used in calculation

ernment and the private health sector in response to the population growth.

Considerable changes in the healthcare delivery system in Kuwait have occurred during the past decade. These are likely to continue for the foreseeable future, although the factors that would come into play in the long-term are unpredictable at present. While we regard our assumptions as tenable in the present context, we realize that it is important to keep the interactions between the health policy environment and the factors that influence the supply and demand for nurses under review, taking into account the Government's current initiatives in relation to the healthcare delivery system of the country. It is highly unlikely that the gap between the demand for nurses and the supply of Kuwaiti nurses will be bridged by year 2020, and the discrepancy will continue for

Figure 2. Actual and projected demand and supply of Kuwaiti nurses in Kuwait, 1994 - 2020

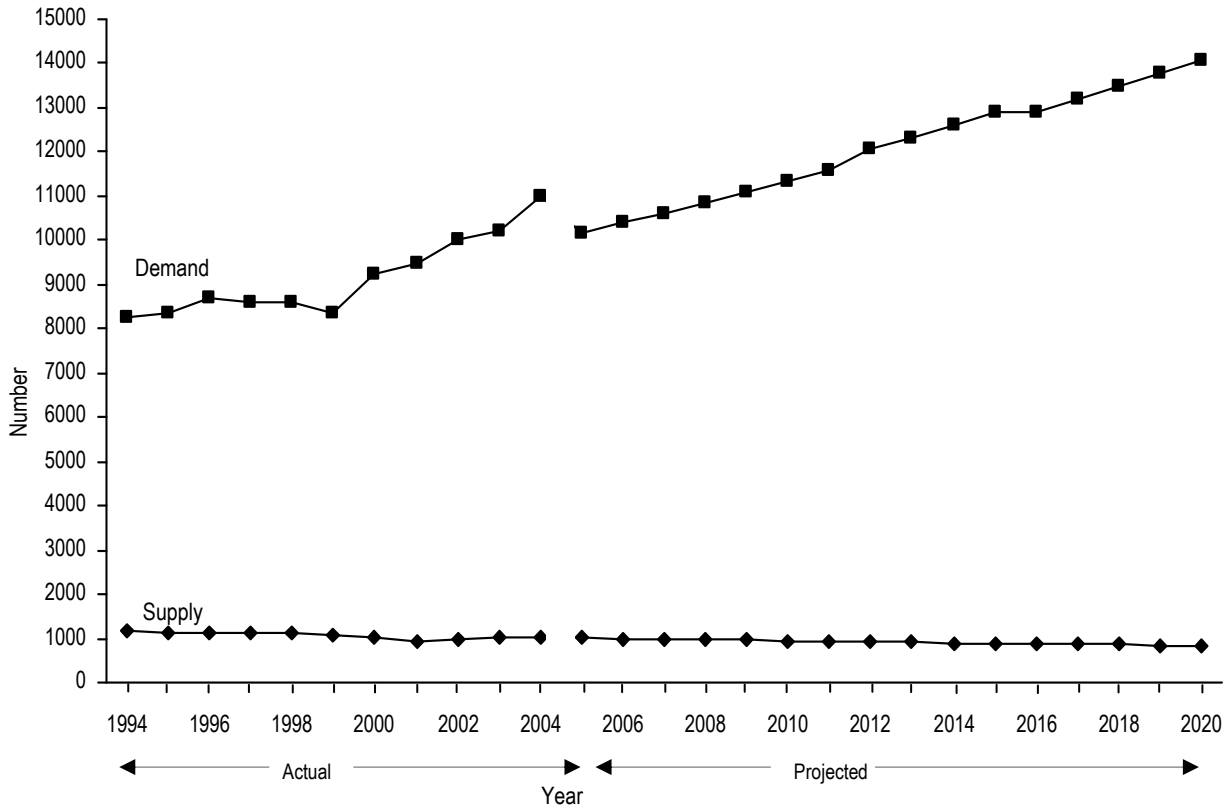


Figure 3. Actual and projected demand and supply of Kuwaiti nurses in Kuwait based on the United Kingdom nurses: population ratio, 1994-2020

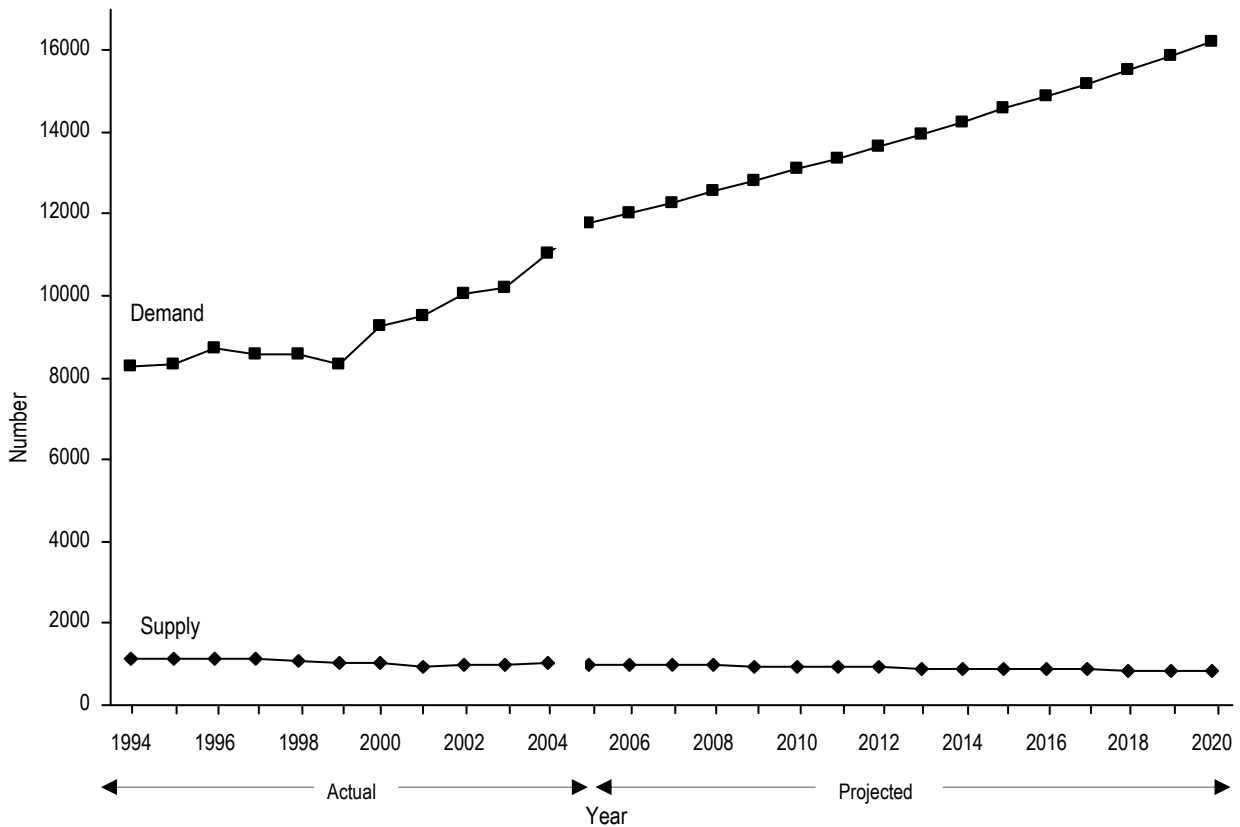


Table 4. Projected number of nurses needed in Kuwait based on the United Kingdom nurses: population ratio, for the years 2005-2020

Year	Estimated total population ¹	Projected number of nurses needed ²	Projected number of Kuwaiti nurses ³	Disparity between total needed and Kuwaiti nurses ⁴	
				Number	%
2005	2,569,516	12784	1005	11779	92.14
2006	2,617,685	13023	993	12030	92.38
2007	2,666,986	13269	981	12288	92.61
2008	2,717,450	13520	969	12551	92.83
2009	2,769,109	13777	957	12820	93.05
2010	2,821,997	14040	945	13095	93.27
2011	2,876,145	14309	934	13375	93.47
2012	2,931,591	14585	923	13662	93.67
2013	2,988,369	14868	911	13957	93.87
2014	3,046,515	15157	900	14257	94.06
2015	3,106,069	15453	890	14563	94.24
2016	3,167,069	15757	879	14878	94.42
2017	3,229,555	16067	868	15199	94.60
2018	3,293,567	16386	858	15528	94.76
2019	3,359,150	16713	847	15866	94.93
2020	3,426,347	17046	837	16209	95.09

^{1,2,3,4} Refer to appendix (page 26) for the formula used in calculation

many years beyond that, particularly if the nurse: population ratio were to be improved to match the levels that exist in the developed countries.

RECOMMENDATIONS

The current nursing workforce in Kuwait is made up of a minority of Kuwaiti nurses (9.2%), while the majority are expatriates. The rate of Kuwaiti nursing workforce has been declining throughout the past decade. Our analysis suggests that the gap between the demand for nurses and the supply of Kuwaiti nurses will increase unless drastic measures are taken to bridge this gap. The Kuwaiti share of the nursing workforce should be increased through an increase in nursing student numbers, taking into account the ability of the educational sector to manage the expansion while maintaining quality.

Given the changes that the health authorities and the nursing education sys-

tem are likely to face during the coming decades, our recommendations are designed to provide a flexible and cost-effective approach, which need be reappraised in the future as applicable:

- Educational nursing bodies should increase the annual intake of nursing students while ensuring that the quality of nursing education is not compromised.
 - Health care authorities need to continuously review health-related policies so that a balance between the demand and supply of nurses is achieved. Changes in healthcare policy of the Ministry of Health and other government sectors can substantially affect the demand and supply of nurses.
 - The Ministry of Health and other employers of nurses should give further attention to improving the working conditions and retention via improvement of salaries, benefits and overtime, and reducing the workload and non-nursing tasks.
 - The Ministry of Health, Ministry of Higher Education and Nursing Professional Association should launch public education programs through mass media to educate the community regarding the essential role played by nurses in the health care delivery system so that the nursing profession would earn its due respect and violence and abuse of nurses could be abolished. This may help in minimizing the negative perception of nursing and increase the number of Kuwaitis who wish to enter the profession.
- Finally it should be emphasized that staffing ratios that set a maximum number of patients per nurse need to be implemented, mandatory overtime duties prohibited, and flexible scheduling options provided so that nurses are ensured of having the rest they need for providing quality patient care. Access for local and international education and training programs for nurses should be increased, and opportunities for promotion and career development should be enhanced.

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Appendix

Table 3

¹Estimated population = [Kuwaiti population in the previous year x 1027.9/1000 for Kuwaitis (growth rate 2.79%)] + [non Kuwaiti population in the previous year x 1008.1/1000 for non Kuwaitis (growth rate 0.804%)], [27.9 = 28.5 (natural increase in Kuwaiti population per 1000 for the year 2004) – 0.6 (the average decrement in natural increase per 1000 in Kuwaiti population for the period of 1994 - 2004), 8.1 = 8.5 (natural increase per 1000 in non Kuwaiti population for the year 2004) – 0.4 (the average decrement in natural increase in non Kuwaiti population for the period of 1994 - 2004), Health Kuwait, 2004.

²Projected total number of nurses needed at a year = Estimated population at that year divided by 230 (population to one nurse ratio which is equivalent to 4.36: the average number of nurses per 1000 population for the period of 1994 to 2004).

³Projected number of Kuwaiti nurses at a year = Number of Kuwaiti nurses in the previous year x 98.79/100. The Average annual growth rate of Kuwaiti nurses of the period 1994 to 2004 = -1.21%, is calculated as $\{[(1017-1152)/1017] \times 100\} \div 11$.

⁴Disparity number = Projected total number of nurses needed (column 2) – Projected number of Kuwaiti nurses (column 3). Disparity % = [Disparity number ÷ Projected number of nurses needed (column 2)] x 100.

Table 4

^{1,3,4}As described in Table 3.

²Projected number of nurses needed at a year = Estimated population at a year divided by 201 (population to one nurse ratio in the United Kingdom which is equivalent to 4.97: the average number of nurses per 1000 population in the United Kingdom, WHO).