

# Health Vision 2020

## Workforce needs of health professionals in Kuwait

### Part IV - Allied Health Professionals

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#### ABSTRACT

**Background:** Allied health professionals (AHPs) are a critical resource in any health care system. Shortages in their availability can restrict access to needed health services and may potentially reduce the quality of care. AHPs are central to the modernization of the health care delivery system. Often, they are the first point of contact for patients, reducing waiting time, and helping the latter to recover from disease states.

**Objectives:** The aims of the study were to: (1) describe the size of the AHPs workforce in Kuwait during the years 2001 to 2005; (2) project the future demand of AHPs, with special reference to the supply of Kuwaiti AHPs during the years 2006 to 2020.

**Methods:** Local and international data on demand and supply of AHPs were retrieved. Data on the actual population and supply of AHPs during the years 2001 to 2005 were used to project the future demand of AHPs during the period 2006 to 2020. Population projections were derived using an exponential average annual population growth rate. The future need for AHPs was projected using the population ratio during 2001 to 2005, of one AHP to 358 population (equivalent to 2.7909 AHPs to 1000 population). The projected number of Kuwaiti AHPs at a given year was calculated by incrementing the number of Kuwaiti AHPs of the previous year by 8.82%, the average annual growth rate of Kuwaiti AHPs during 2001 to 2005. Projections for the demand of AHPs were also computed based on the Australian ratio of 7.3

AHPs: 1000 population (equivalent to one AHP to 137 population).

**Results:** The average annual growth rate of 8.82% for Kuwaiti AHPs indicates that the number of Kuwaiti AHPs is increasing. Of the total demand of AHPs in year 2005, Kuwaiti AHPs constituted 48.2%, mostly employed by the Ministry of Health. Assuming that the 2005 AHPs to population ratio will continue to be the same and no new AHP specialties will be introduced, it is projected that the number of Kuwaiti AHPs will be equal to the number of non-Kuwaiti AHPs by year 2007. By year 2018 Kuwaiti AHPs will constitute the majority in the profession. However, the number of Kuwaiti AHPs available is unlikely to meet the total demand if the health authorities were to improve the AHPs: population ratio to the values in affluent countries such as Australia by establishing the needed AHP specialties that do not exist in Kuwait at present.

**Conclusion:** There is a gap between the projected numbers of AHPs in Kuwait and affluent countries such as Australia due to the numerous non-existing AHP specialties. There is a need to introduce new AHP specialties for the improvement of patients' health care. The education authorities in Kuwait, namely the Faculty of Allied Health Sciences, and the Public Authority for Applied Education have the responsibility to introduce innovative allied health training programs similar to those existing in the developed countries. Also, more scholars for new allied health technologists should be supported by the Ministry of Higher Education.

#### INTRODUCTION

Allied health professionals (AHPs) perform an essential service role in any health care delivery system. Their shortages can restrict access to needed health services and may potentially reduce the quality of care.<sup>1</sup> The demand and supply of AHPs are likely to be affected by sociodemographic elements such as age distribution of the population.<sup>2</sup> There is a growing proportion of women in the

AHP job market who desire to combine their career with their familial roles. Female health workers work fewer hours, retire earlier and take time off more frequently than their male colleagues.

There is more recognition now than at any time in the past of the capacity of the AHPs to make a real difference to the lives of patients and to develop new ways of working.<sup>3</sup> AHPs are central to the

modernization of the health care delivery system. Often, they are the first point of contact for patients, reducing waiting time, and helping patients to recover. Today, across the National Health Services (NHS) and Social Services in England, over 50,000 members of the allied health professions provide patient-centered care, working alongside doctors, nurses and scientists. They provide treatment, care, social services, promoting good health, treating patients who are acutely ill and caring for those with chronic illnesses. However, the role of the allied health professions has too often been undervalued or neglected.

In primary care, members of the AHPs work in teams with General Practitioners (GPs), nurses and other professionals such as social workers to provide quick and effective care for patients without the need for them to go to hospitals. Similarly, these professions can help to cut waiting lists and times in secondary health care level.

The allied health professionals such as occupational therapists, diagnostic radiographers, professionals in cancer screening services, and cardiac rehabilitation play an important role in delivering improved care to patients with cancer, heart disease and mental illness. The allied health professions also have a central role to play in developing services for older people. Creating a scheme of assistant practitioners for breast screening services could release radiographers to extend their role into performing some of the tasks traditionally undertaken by radiologists. Paramedics are becoming more widely involved in primary and secondary health care. Furthermore, the allied health professions are uniquely well placed to work across the boundaries of health and social care.<sup>4</sup>

One way of increasing capacity within the medical workforce would be to increase the use of physician assistants. In the United States, the role of physician assistants has been developed alongside those of doctors in training to provide mid-level care. Physician assistants are fully trained professionals who take on a role equivalent to that of a junior doctor during their entire career.<sup>5</sup> NHS Trusts in UK are exploring using technical

and surgical assistants to perform routine surgery such as cataracts and hip operations. New two year vocational foundation degrees are being set up to train highly skilled practitioners and technical assistants. In line with the ideas developed by Kingston Hospital Trusts and others, a person entering the NHS could be trained to become a health care practitioner, rather than a doctor, nurse, or allied health professional, later specializing as a consultant in a specific profession or role.<sup>6</sup>

Another category of AHPs is pharmacy technicians who work in a pharmacy under the supervision of licensed pharmacists and assist in a number of pharmacy activities. Pharmacy technicians need to have good interpersonal skills to be able to communicate with patients and other health care professionals. The role of the pharmacy technicians is expanding, making it a more recognized and valued part of the health care field.<sup>7</sup> Pharmacy technicians in Canada are taking on a greater role in dispensing but generally, little is known about their numbers or their training programs.<sup>8</sup>

The classification of Allied Health professionals in the USA<sup>9</sup> are: dental hygienists, dental assistants, dental laboratory technicians, dietetic technicians, emergency medical technicians and paramedics, health information technologists, clinical laboratory workers, occupational therapists, surgical and dental orthotics and prosthetics, physical therapists, radiologic service workers, respiratory therapy workers, speech pathologist/ audiologists, genetic assistants, operating room technicians, ophthalmic medical assistants, optometric technicians, pharmacy assistants, physical therapy assistants, podiatric assistants, medical transcriptionists, vocational rehabilitation technologists, and social and mental health service workers.

In Australia, the existing clinical allied health professions are audiology, dietetics, hospital pharmacy, medical imaging, occupational therapy, orthoptics, orthotics and prosthetics, physiotherapy, podiatry, psychology, social work and speech pathology.<sup>10</sup> There are shortages in

physiotherapists, pharmacist assistants, occupational therapists, speech pathologists, diagnostic radiographers, radiation therapists, sonographers, and nuclear medicine technologists in the Australian allied health workforce.<sup>11</sup>

In Kuwait, there are several sources for producing and training allied health professionals, namely the Faculty of Allied Health Sciences, Kuwait University, the College of Health Sciences, Public Authority for Applied Education, and the scholarships programs supported by the Ministry of Higher Education. Future private universities in Kuwait will be an additional source for enhancing the AHP workforce.

The Faculty of Allied Health Sciences was established as an independent faculty under the umbrella of the Health Sciences Center in 1982, prior to which it was a constituent of the Faculty of Medicine. The Faculty of Allied Health Sciences was given the responsibility to train allied health students through the Ministry of Health, which recognized that the shortage in allied health personnel in Kuwait was at least as great as that in physicians. The Ministry adopted a policy of training staff locally wherever possible because the graduates would then have a better knowledge of local circumstances. Moreover, they could be trained to meet local needs and would provide greater stability in the professional cadre than when relying on expatriate staff.

The Governing Board for Para-Medical Education in the Ministry of Health identified the fields in which the need for training was most urgent as Medical Laboratory Sciences, Health Information Administration, Physical Therapy, and Radiological Sciences. The Faculty of Allied Health Sciences admits a maximum of 150 students annually for training.<sup>12</sup> In June 1985, the University Council approved the upgrading of the four allied health programs (Medical Laboratory Sciences, Health Information Administration, Physical Therapy, and Radiological Sciences) into academic departments. In addition, the College of Health Sciences of the Public Authority for Applied Education organises 2-

year programs in Medical Records, Laboratory Sciences and Assistant Pharmacists. Moreover, the Faculty of Allied Health Sciences, Kuwait University is planning to provide bachelors-degree programs in Speech and Language Pathology in the near future. In addition, the Ministry of Higher Education provides scholarships in the following allied health areas: Radiological Technology, Dentistry Technology, Bio-technology, Nuclear Medicine Technology, Medicine Biochemistry, Speech Pathology, Dietetics and Nutrition, Laboratory Medicine Science, Speech and Hearing Science, Orthotics and Prosthetics, and Occupational Therapy.<sup>13</sup>

## OBJECTIVES

1. Describe the size of AHP workforce in Kuwait during the period 2001 to 2005.
2. Project the future demand of AHPs as well as the supply of Kuwaiti AHPs during the years 2006 to 2020.

## METHODS

Local and international data on demand and supply of AHPs were retrieved. Local sources included Department of Statistics and Medical Records, Ministry of Health<sup>14</sup>, Department of Medical Licensing, Ministry of Health, Ministry of Planning, and Public Authority for Civil Information (PACI). International sources included World Health Organization<sup>15</sup>, and the Allied Health Workforce Standing Advisory Committees of Scotland<sup>3,16</sup> and UK<sup>4</sup>, USA<sup>7</sup> and Australia.<sup>10, 11</sup>

Data on population and supply of AHPs for the years 2001 to 2005 were used to assess the size of allied health workforce, and project the number of AHPs needed for the years 2006 to 2020. Population projections of the years 2006 to 2020 were derived from the population of the year 2005 using an exponential average annual population growth rate.

The number of AHPs needed at a given year was estimated by dividing the estimated population at that year by 358, the population to one AHP ratio which is

equivalent to 2.7909: the AHPs to 1000 population ratio at year 2005 (2.5911): plus the average increment of the ratios for the period 2001 to 2005 (0.1998).

The projected number of Kuwaiti AHPs at a given year was calculated by incrementing the number of Kuwaiti AHPs at the previous year by 8.82%, which is the average annual growth rate of Kuwaiti AHP workforce during the years 2001 to 2005 (see page 21, Appendix, Table 2). The disparity between the projected number of AHPs needed and the number available was calculated together with their percentages for each year. Similar projections for the demand of AHPs were computed based on the Australian ratio, which was explicitly described compared to other developed countries which showed only absolute number of AHPs. The Australian ratio is 7.3 AHPs per 1000 population which is equivalent to one AHP to 137 population (see page 21, Appendix, Table 3).

## RESULTS

Table 1 presents the population data and the number of Kuwaiti and non-Kuwaiti AHPs in service in private and public health sectors

during the period 2001 to 2005. The table also shows the AHPs to 1000 population ratios which were calculated by dividing the number of AHPs in service by the respective population size, and then multiplying the result by 1000. The average annual growth rate for Kuwaiti AHP workforce was 8.82% compared to 6.76 for non-Kuwaitis.

In 2005, the Ministry of Health was the main employer for AHPs (87.9%). In the private sector, only 8.3% of AHPs were Kuwaitis, while 98% of AHPs working in the Ministry of Health were Kuwaitis. Overall, Kuwaiti AHPs constituted 48.2% of the AHP workforce in Kuwait in year 2005.

Table 2 shows the projected number of AHPs needed for years 2006 to 2020. The

**Table 2. Projected number of allied health professionals needed in Kuwait for the years 2006-2020**

Year	Estimated total population <sup>1</sup>	Projected number of allied health Professionals demanded <sup>2</sup>	Projected number of Kuwaiti allied health professionals <sup>3</sup>	Disparity between total demand and Kuwaiti allied health professionals <sup>4</sup>	
				Number	%
2006	2,617,685	7312	3489	3823	52.28
2007	2,666,986	7450	3796	3654	49.05
2008	2,717,450	7591	4131	3460	45.58
2009	2,769,109	7735	4496	3239	41.87
2010	2,821,997	7883	4892	2991	37.94
2011	2,876,145	8034	5324	2710	33.73
2012	2,931,591	8189	5793	2554	30.60
2013	2,988,369	8347	6304	2206	25.92
2014	3,046,515	8510	6860	1816	20.93
2015	3,106,069	8676	7465	1382	15.62
2016	3,167,069	8847	8124	723	8.17
2017	3,229,555	9021	8840	181	2.01
2018	3,293,567	9200	9620	-420	-4.57
2019	3,359,150	9383	10469	-1086	-11.57
2020	3,426,347	9571	11392	-1821	-19.03

1, 2, 3, 4 Refer to Appendix (Page 21) for the formula used in calculations.

**Table 1. Actual supply of allied health professionals in Kuwait, 2001 – 2005**

Year	Total population	Actual number of allied health professionals in service			Allied health Professionals to 1000 population ratio
		K	NK	Total	
2001	2,274,980	1792	2285	4077	1.7921
2002	2,363,325	2069	2351	4420	1.8702
2003	2,484,334	2284	2621	4905	1.9744
2004	2,522,451	2992	3152	6144	2.4357
2005	2,569,516	3206	3452	6658	2.5911

K= Kuwaiti, NK= Non-Kuwaiti

Sources:

- Department of Medical Licensing, Ministry of Health (for private sector data).
- Third Quarterly Report (July–September 2005), Department of Statistics & Medical Records, Health & Vital Statistics Division, Ministry of Health (for year 2005 data).
- Fourth Quarterly Report (October–December 2004), Department of Statistics & Medical Records, Health & Vital Statistics Division, Ministry of Health (for year 2004 data).
- Health Kuwait Editions 40, 39, 38, Department of Statistics & Medical Records, Health & Vital Statistics Division, Ministry of Health (for years 2001 to 2003).

Figure 1. Actual and projected demand and supply of Kuwaiti allied health professionals in Kuwait, 2001-2020

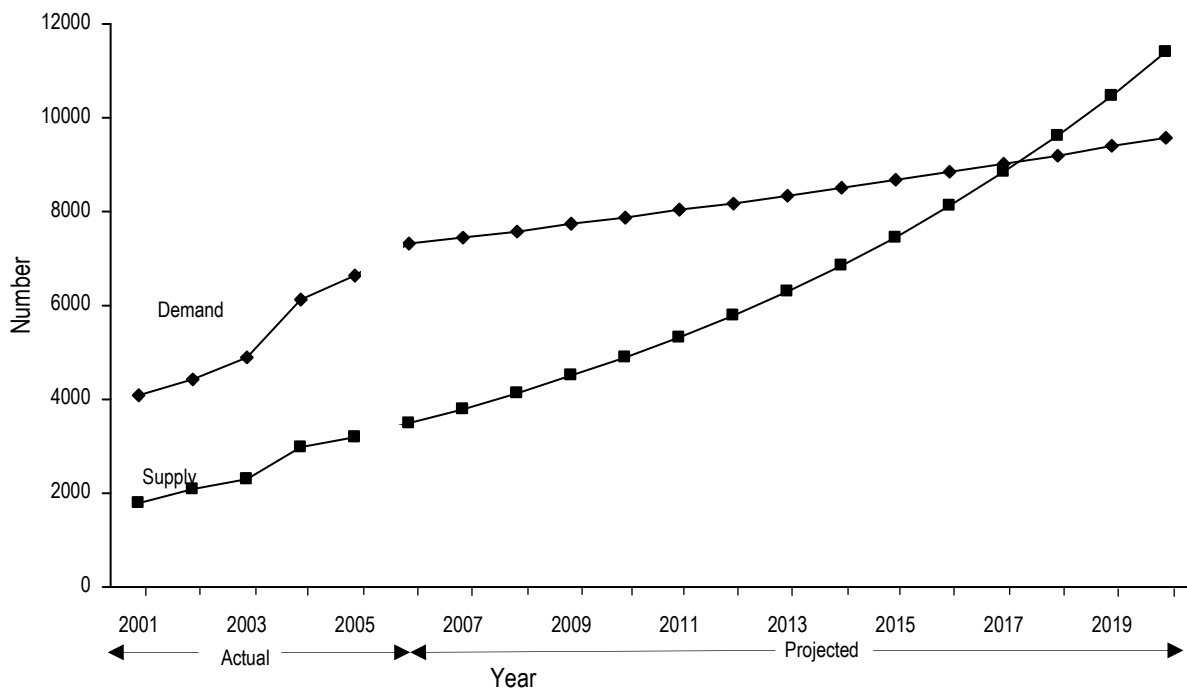
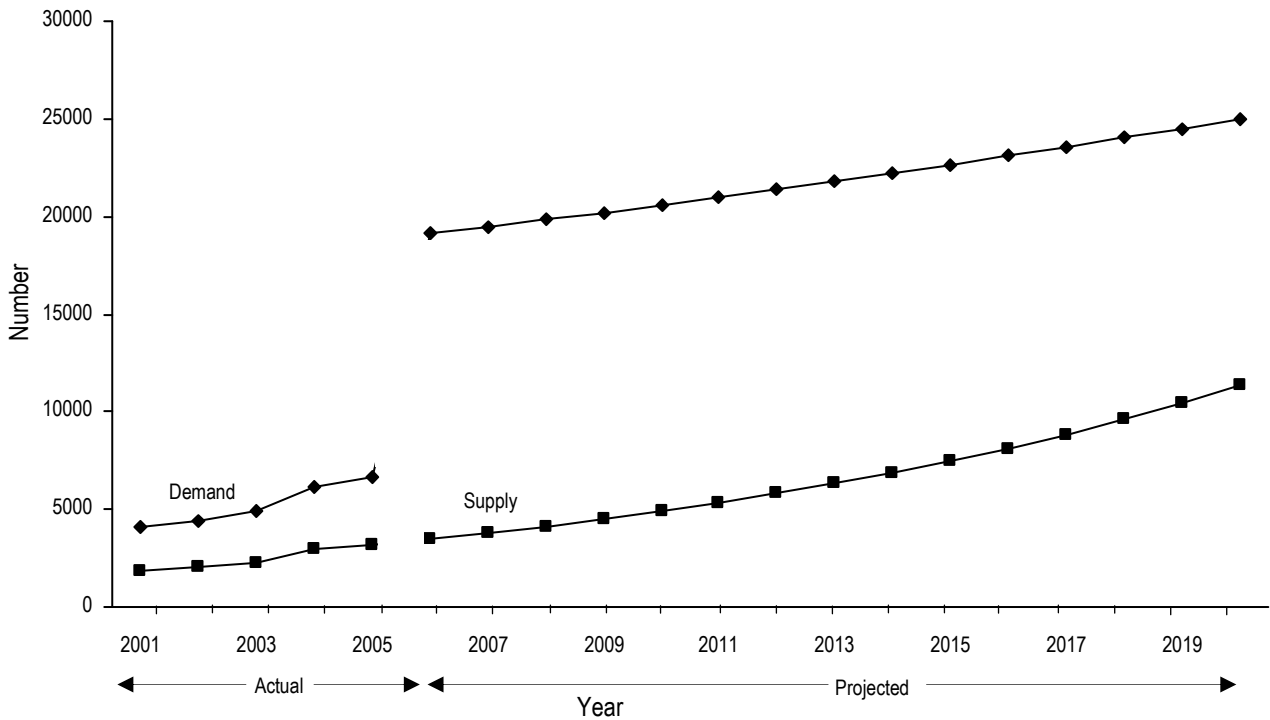


Figure 2. Actual and projected demand and supply of Kuwaiti allied health professionals in Kuwait based on the Australian allied health professionals: population ratio, 2001-2020



**Table 3. Projected number of allied health professionals needed in Kuwait based on the Australian allied health professionals: population ratio, for the years 2006-2020**

Year	Estimated total population <sup>1</sup>	Projected number of allied health Professionals needed <sup>2</sup>	Projected number of Kuwaiti allied health professionals <sup>3</sup>	Disparity between total demand and Kuwaiti allied health professionals <sup>4</sup>	
				Number	%
2006	2,617,685	19107	3489	15618	81.74
2007	2,666,986	19467	3796	15671	80.50
2008	2,717,450	19835	4131	15704	79.17
2009	2,769,109	20212	4496	15716	77.76
2010	2,821,997	20599	4892	15707	76.25
2011	2,876,145	20994	5324	15670	74.64
2012	2,931,591	21398	5793	16020	73.44
2013	2,988,369	21813	6304	15933	71.65
2014	3,046,515	22237	6860	15812	69.74
2015	3,106,069	22672	7465	15652	67.71
2016	3,167,069	23117	8124	14993	64.86
2017	3,229,555	23573	8840	14733	62.50
2018	3,293,567	24041	9620	14421	59.99
2019	3,359,150	24519	10469	14050	57.30
2020	3,426,347	25010	11392	13618	54.45

<sup>1,2,3,4</sup> Refer to Appendix (Page 21) for the formula used in calculations.

projected total demand of AHPs will increase from 7312 in year 2006 to 9571 in 2020, while the projected number of Kuwaiti AHPs will increase from 3489 in 2006 to 11392 in 2020 based on an annual growth rate of 8.82%. It is estimated that the Kuwaiti AHPs will dominate the profession by year 2018 (Table 2, Figure 1).

Table 3 shows the projected number of AHPs needed based on the ratio in Australia (7.3 AHPs per 1000 population), which is equivalent to one AHP to 137 population. Accordingly, the number of AHPs needed is projected to be 19107 in year 2006 and will reach 25010 in 2020. Hence the disparity

between total demand and the supply of Kuwaiti AHPs will range between 81.74% in year 2006 to 54.45% in 2020 (Figure 2).

The wide gap between the projected numbers of AHPs in Kuwait and Australia could be attributed to the fact that many of the allied health professions needed to provide an optimum level of healthcare do not exist in Kuwait. The allied health education authorities (Faculty of Allied Health, College of Health Sciences, and Public Authority for Applied Education) do not have training programs at present to graduate these professionals. Some of these allied health programs are currently at the planning stage. The Ministry of Higher Education can play a major role by providing scholarships for training in the allied health technology fields needed. In addition, the private universities that would be established in Kuwait in future will also be able to contribute to improving the AHP workforce.

## DISCUSSION/ CONCLUSIONS

This study was carried out with the objective of projecting the supply and demand of AHPs in Kuwait. The estimation of demand was based on the ratio of one AHP to 358 population (equivalent to 2.7909 AHPs per 1000 population: the AHPs to 1000 population ratio at year 2005 plus the average increment of the ratios for the period 2001 to 2005).

Analysis of the current AHP workforce and projected numbers during the period 2006 to 2020 shows that the supply of Kuwaiti AHPs is expected to dominate the profession by the year 2018 if the average annual growth rate for Kuwaiti AHPs continues at its current level of 8.82%, and the available range of allied health professionals will remain at the current level. If new AHP professions are to be introduced in the Kuwait health care delivery system, and the AHP population ratios were to be improved to the level in Australia (one AHP per 137 population), the supply of Kuwaiti AHPs until the year 2020 will not be sufficient to meet the projected demand. By the year 2020, Kuwaiti AHPs

will be expected to provide 45.55% of the projected demand. Indeed, numerous urgently needed allied health' professions do not exist in Kuwait at present. This has led to the wide gap between projected data on AHPs in Kuwait and Australia.

Considerable changes in the health care delivery system in Kuwait have occurred during the past decade, and are likely to continue for the foreseeable future. There is, inevitably, uncertainty over the planning on a long term basis. 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 which influence the supply and demand for allied health professionals under review, taking into account the Government's initiatives in relation to the health care delivery system of the country.

## RECOMMENDATIONS

Almost half (48.2% in year 2005) of the current workforce of AHPs are Kuwaiti nationals, most of whom are employed by the Ministry of Health. It is increasing at an average annual growth rate of 8.82%. Our recommendations are summarized as follows:

- Introduce new AHP specialties needed for improving the health care available to patients.
- Provide good working conditions and professional development and training opportunities for AHPs, which is crucial for recruiting and retaining them.
- Create a unified and accessible register for AHPs with an explicit link between re-registration and evidence of continuing professional development.
- Provide protection of professional titles for AHPs, e.g. physiotherapists, assistant pharmacists, etc.
- Establish a Council for Allied Health Professions which has a strategic role in setting and monitoring standards.
- Build innovative approaches, such as training assistant practitioners in breast screening, to take mammograms under

the supervision of a radiographer. The aim is to enable radiographers to extend their role into the tasks traditionally undertaken by radiologists, in turn increasing the capacity of the health care system to deliver a national breast screening service.

## REFERENCES

1. Center for Health Workforce Studies. *State Responses to Health Worker Shortages: Results of 2002 Survey of States*. Albany, NY: School of Public Health, State University of New York, November 2002.
2. Blomqvist G, Carter L: Is health care really a luxury? *J Health Econ* 1997;16:207-29.
3. NHS Scotland. *Framework for Role Development in the Allied Health Professions*. Scottish Executive Health Department, June 2005.
4. The NHS Plan. *Meeting the Challenge: A Strategy for the Allied Health Professions*. London: Department of Health, UK November, 2000.
5. Hutchinson L, Marks T, Pittilo M. The physician assistant: would the US model meet the needs of the NHS? *BMJ* 2001;323:1244-7.
6. The Future Workforce. *BMJ Career Focus* 2002. Available from URL: <http://careerfocus.bmjournals.com/cgi/content/full/325/7363/S73a>.
7. US Department of Health and Human Services, Health Resources and Services Administration Bureau of Health Professions. *The Pharmacist Workforce, A Study of the Supply and Demand for Pharmacists*. US: December 2000.
8. Fooks c, Maslove L, Research Report H/07, Health Network. *Health Human Resources Policy Initiatives for Physicians, Nurses and Pharmacists*. Canadian Policy Research Network, October 2004.
9. Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Analysis. *Health Workforce*

- Reports*. Available from URL:  
<http://bhpr.hrsa.gov/healthworkforce/reports/factbook02/FB601.htm>.
10. O’Kane A, Lowe S. *Clinical Allied Health Professions - A method of classification developed from common usage of the term ‘allied health’, as applicable to rural and remote Australia*. The National Rural and Remote Allied Health Advisory Service (NRRAHAS): Australia, 2003.
  11. Australian Health Ministers' Conference. *National Health Workforce Strategic Framework*. Sydney: 2004.
  12. Health Sciences Center, Kuwait University. *Faculty of Allied Health Sciences, Handbook 2005/2006*. Kuwait University Press: 2005, p. 10.
  13. Ministry of Higher Education. *Description of Science and Art Specialties- Year 2005/ 06 Scholarship Plan, Committee of Scholarship Plan*. Kuwait: Ministry of Higher Education, 2005.
  14. Ministry of Health. *Health Kuwait*, 40<sup>th</sup> ed. Kuwait: Health and Vital Statistics, Department of Statistics and Medical Records, 2005.
  15. Dubois CA, Nolte E, McKee M (2003). Human resources of health in Europe. <http://www.euro.who.int>.
  16. NHS, Scottish Executive. *National Workforce Planning Framework 2005*. UK: 2005. Available from URL: <http://www.scotland.gov.uk/Publications/2005/08/30112456/24587>.

**Appendix**

Table 2

<sup>1</sup>Estimated 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.

<sup>2</sup>Projected total number of AHPs demanded at a given year = Estimated population at that year divided by 358 (population to one AHPs ratio which is equivalent to 2.7909: the AHPs to 1000 population ratio at year 2005 (2.5911) + the average increment of the ratios for the period 2001 to 2005 (0.1998).

<sup>3</sup>Projected number of Kuwaiti allied health professionals at a year = Number of Kuwaiti allied health professionals in the previous year x 108.82/100 (Average annual growth rate of Kuwaiti allied health professionals of the period 2001 to 2005 = 8.82%, calculated as  $\{[(3206-1792)/3206] \times 100\} \div 5$ ).

<sup>4</sup>Disparity number = Projected total number of allied health professionals demanded (column 2) – Projected number of Kuwaiti allied health professionals (column 3). Disparity % = [Disparity number ÷ Projected number of allied health professionals demanded (column 2)] x 100.

Table 3

<sup>1,3,4</sup>As described in Table 2.

<sup>2</sup>Projected number of allied health professionals demanded at a year = Estimated population at a year divided by 137 (population to one allied health professional ratio in Australia which is equivalent to 7.3: the average number of allied health professionals per 1000 population in Australia, WHO).