

HUMAN

RESOURCES

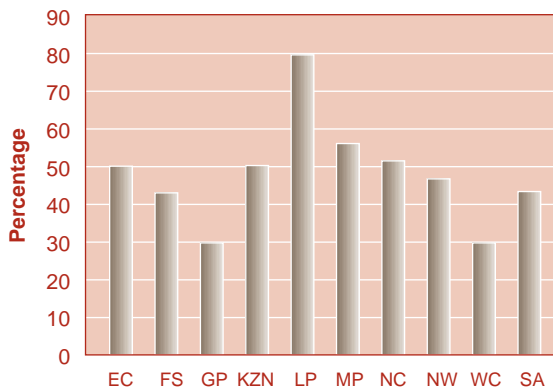


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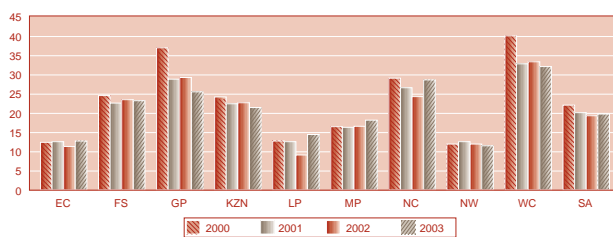
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Percentage of professional nurses in the public sector, 2003

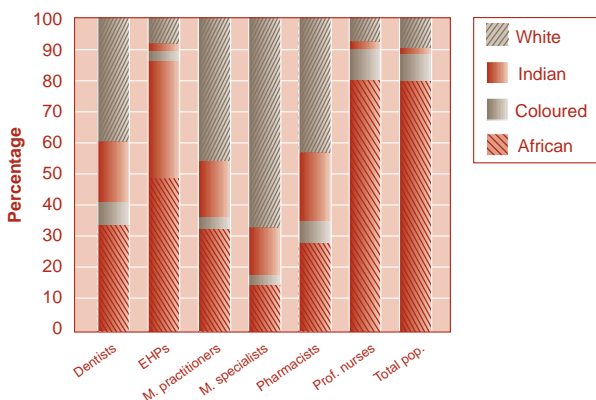


Source: PERSAL and SANC

Medical practitioners (public sector) per 100 000 public sector dependent population by province, 2000-2003



Percentage composition of selected health professionals by race compared to the total population, 2003



Key Messages

- ◇ A comprehensive human resources for health strategy is urgently required.
- ◇ A human resource model for SA needs to consider the role of both western and traditional practitioners, and comprise an appropriate mix of professionals, mid-level workers and community health workers.
- ◇ The inadequate supply and distribution of personnel has the most severe effect on health system functioning in underserved areas.
- ◇ Improving distribution of health personnel is vital if antiretroviral treatment (ART) is to be rolled out equitably throughout the public sector.
- ◇ There is a need to monitor migration patterns between rural and urban areas, and between private and public sectors as well as between countries.
- ◇ Monitoring and evaluation of the impact of the rural and scarce skills allowances is important, as well as developing other strategies for retention of health personnel.
- ◇ Revision and redesign of the training and scopes of practice of many categories of health workers is required to meet the future needs of the health system.

Framework for Monitoring and Evaluation

Global:

- ◇ Commonwealth Code of Practice for the International Recruitment of Health Workers

South Africa:

- ◇ Policy on recruitment, employment and support of foreign health professionals in SA
- ◇ National Health Bill
- ◇ Health Goals, Objectives and Indicators 2001-2005

Key Indicators

- Health professionals per 100 000 population
- Percentage of health professional posts vacant
- Percentage composition of health professionals
- Percentage composition of medical students

Key References and Data Sources

- ◇ Personnel administration system (PERSAL)
- ◇ Human Resources for Health: A national strategy 2001 (Pick Report)
- ◇ University admissions data

Introduction

By far the most significant component of any health system is its health personnel.^a Without a foundation of skilled human resources, health care systems cannot function adequately or effectively, particularly in the public sector and at the primary level of care.¹ Health systems in southern Africa have improved in their performance at those times when there have been improvements in the deployment and orientation of health personnel towards major health problems and improvements in the effective use of staff time; also when tasks and resources have been in better balance at primary care level. Research from other countries show a correlation between quality of care, health care outcomes and the availability of health personnel.^{2,3}

Until recently, Human Resource departments of most health systems have been relatively under-resourced, reflecting the lack of attention given to this significant component of the system. The South African Human Resource Development Directorate is overseen by a Chief Director and Director, supported by four deputy directors who are responsible for the following sections: Personnel Management, Health Professional Liaison, Human Resource Policy and Planning, and Academic Health Science Complexes. High staff turnover rates and a number of vacant posts within the Directorate have contributed to the challenges faced by the unit.

South Africa (SA) faces a variety of health personnel problems. These include an overall lack of personnel in key areas of the health sector; an inequitable distribution of those health personnel who are available; and a significant attrition of trained personnel from the health sector and from the country.

The maldistribution of health care personnel occurs between:

- ◆ public and private sectors
- ◆ urban and rural areas
- ◆ formal urban and informal peri-urban areas
- ◆ tertiary and primary levels of care.

The greatest imbalance in personnel distribution is between the private and public sectors. In SA, private health services consume 58% of total health expenditure and capture a higher proportion of all types of personnel (except nurses) than the public sector.^{4,5} In 1998, for example, 52.7% of all general practitioners and 76% of all specialists worked in the private sector.⁶ By 1999, 73% of general practitioners were estimated to

be working in the private sector in SA, despite the fact that this sector catered for less than 20% of the population.⁶

Rural-urban inequities in the distribution of specialist and highly skilled health personnel trace back to the concentration of such personnel within higher levels of the health care system – mainly located in urban areas – and weak outreach, support or supervision links from these services to the peripheral services in their catchment area. Hence, for example, inequities tend to be worse for doctors compared to nurses and for specialist doctors compared to generalist doctors. Compounding factors such as poor infrastructure, inadequate facilities and lack of appropriate housing and schools in rural settings exacerbate the imbalance. Urban inequities in distribution of personnel leave populations in peri-urban areas, with the most vulnerable health status and greatest need of care, relatively under-served, while personnel ratios are more generous in formal (and wealthier) areas.¹

The exodus of skilled health personnel from SA has been substantial. It is estimated that between 1989 and 1997 nearly 250 000 people left the country for Australia, New Zealand, Canada, the UK and the USA. There are 600 doctors registered to practice in New Zealand and 6% of the total health workforce in the UK are South African.¹

This chapter outlines the South African framework for monitoring health human resource planning and distribution adopted by the national Department of Health (NDoH) in their 2001-2005 planning document, and the policy framework that has been developed since 1994 with the intent to optimise deployment of health personnel. Trends in distribution for key categories of personnel are reported using information from the PERSAL database,⁷ and consideration is given to the impact on personnel distribution of the planned roll-out of antiretroviral treatment within the public sector. In addition, forecasts of health sector human resource requirements are included.⁸ Issues affecting the production of doctors, nurses and pharmacists are discussed and some recommendations are offered drawing from international experience in this field.

a Approximately 70% of public sector finance is spent on personnel.

Framework for Monitoring and Evaluation

There is little consistency between countries on how human resource development strategies in the health sector are monitored and evaluated on an international basis.⁹ Like many countries, human resources for health in SA has been a relatively under-resourced and understudied area within the NDoH.

The national Goals, Objectives and Indicators for Human Resources¹⁰ are shown in Table 1.

Table 1: NDoH Goals, Objectives and Indicators for Human Resources Planning, Development and Management, 2001-2005

Goal	Objective	Indicator
Ensure that there are sufficient staff with the right skills in the right location	Developing and producing planning norms for staffing requirements	Planning norms produced
	Formulating strategies to fill posts in areas of need	Vacancy rates according to norms
	Training of new categories of health workers, including mid-level workers	Percentage of mid-level workers trained
	Appropriate production of health professionals	Percentage of trained health professionals according to training norms
	Strategies for recruitment and retention	Attrition rate (of employees)
Transformation of training and education of health professionals	Improving representivity in undergraduate and postgraduate student demography	Percentage of Africans, women and disabled being trained
	Strategies to reduce migration of health personnel	Staff migration rate
	Transformation of Schools of Public Health	Percentage of Public Health Schools implementing policy guidelines
Transformation of professional legislation	Structural reform of professional statutory councils	Statutory councils reformed
	Regulation for health workers currently not regulated	Legislation drafted for traditional healers

Source: *Health Goals, Objectives and Indicators, 2001-2005*¹⁰

Indicator Definitions

The indicators included in this chapter are defined here in general terms for health professionals. Data for indicators are reported for selected categories of health professionals.

Distribution of health personnel

Number of (health professionals): The number of posts for each health profession.

Data from PERSAL are for the public health sector only. Note that older data from PERSAL also included some vacant posts for each profession. Newer data have most of the vacant posts identified, and therefore the number of posts primarily reflects 'filled' posts.

(Health professionals) per 100 000 population: Ratio of the number of (health professionals) to the population (per 100 000).

Note that where this is reported for public health sector personnel, the population has been adjusted to be the public sector dependent (uninsured) population.

(Health professionals): population ratio: The population divided by the number of (health professionals).

This indicator is the inverse of the indicator 'Health professionals per 100 000 population' x 100 000.

Data reported from the Pick Report are based on the number of health professionals registered with the relevant health profession statutory council – an unknown proportion are in actual practice, and the percentage in the public and private sectors is not known from these registers.

In the text, the equivalent value for the ratio of health professionals per 100 000 population has been given in parentheses to facilitate comparison.

Total number of health professional posts: The number of posts for all major health professions combined. Note that this does not include other categories of personnel who may also be employed by the DoH.

Percentage of health professional posts vacant: Percentage of all health sector (professional) posts that are vacant. Note that for data prior to 2002, data are not available by occupational category, so there is no way of knowing in which occupations the greatest shortages exist.

Percentage composition of (health professionals): Percentage breakdown of (health professionals) by race or gender.

Percentage of (health professionals) working in the public (or private) sector: Number of (health professionals) working in the public (or private) sector divided by the total number of registered health professionals.

Note that for most professions data on the number of professionals who are working in the private sector, or who are not working, are not readily available.

Production of health personnel

Percentage composition of medical students: Percentage breakdown of a particular group of medical students by race or gender. For example, may be calculated for all first year students, all undergraduate or postgraduate students, or by training institution.

Policy Measures

Recruiting Health Professionals from outside SA

South Africa's official policy on the recruitment and employment of foreign health professionals expressly describes such initiatives as designed to recruit personnel to work in under-served areas within the country.¹¹ In order to work in SA, foreign doctors are required to be registered with the Health Professions Council of South Africa (HPCSA). Registration is for a period of three years, which can be renewed, and registered doctors are then eligible to enter the public service.¹²

The NDoH's policy on the recruitment of foreign health professionals states that the recruitment of individual applicants from any developing country will not be supported.¹¹ In addition, guidelines on the recruitment on foreign health professionals issued by the NDoH, recommend that employers should refrain from recruiting in developing countries, especially the SADC region.¹³

SA is also a signatory to the Commonwealth Code of Practice for the International Recruitment of Health Workers, which sets out a consensus approach in dealing with international recruitment of health workers. The code seeks to guide the recruitment of health workers in a manner that balances the needs of both source and recipient countries. Some of the guiding principles of the code include transparency in recruitment activities, a ban on recruiting workers who have outstanding obligations to their country, fairness and mutuality of benefits which includes recruiters examining ways in which they could provide assistance to source countries.¹⁴

Attracting Staff to Under-Resourced Areas

Introduction of Community Service

In 1998, community service for doctors was introduced. This was subsequently extended to dentists and pharmacists and in 2003 extended to a further seven health professional groups including physiotherapists, occupational and speech therapists, clinical psychologists, dieticians, radiographers, and environmental health practitioners. According to the NDoH, the aim of community service is to 'ensure improved provision of health services to all citizens of the country'.¹⁵

Rural and scarce skills allowances

In late January 2004, the NDoH introduced rural and scarce skills allowances. The objectives of these allowances are to attract and retain health professionals in the public health sector.^{16, 17} Backdated to July 2003, a sum of R500 million has been set aside for 2004, a further R750 million has been allocated for 2005 and it is anticipated that the budget for this will increase to R1 billion by 2006.¹⁸

The National Health Bill

Human Resources Planning

The National Health Bill, which is expected to be introduced in 2004, provides for a National Health Council to 'develop policy and guidelines for, and monitor the provision, distribution, development, management and utilisation of, human resources within the national health system'.¹⁹ It also calls for policies and guidelines to 'facilitate and advance the:

- ◆ Adequate distribution of human resources;
- ◆ Provision of appropriately trained staff at all levels of the national health system to meet the population's health care needs; and
- ◆ Effective and efficient utilisation, functioning, management and support of human resources within the national health system.

In addition, the Minister is empowered to make regulations to:

- ◆ Ensure that adequate resources are available for the education and training of health care personnel to meet the human resources requirements of the national health system;
- ◆ Ensure the education and training of health care personnel to meet the requirements of the national health system;
- ◆ Create new categories of health care personnel to be educated or trained;
- ◆ Identify shortages of key skills, expertise and competencies within the national health system and to prescribe strategies for the recruitment of health care personnel from other countries; and the education and training of health care providers or health workers in the Republic, to make up the deficit in respect of scarce skills, expertise and competencies;
- ◆ Prescribe strategies for the recruitment and retention of health care personnel within the national health system;
- ◆ Ensure the existence of adequate human resources planning, development and management structures at national, provincial and district levels of the national health system;

- ◆ Ensure the availability of institutional capacity at national, provincial and district levels of the national health system to plan for, develop and manage human resources;
- ◆ Ensure the definition and clarification of the roles and functions of the national department, provincial departments and municipalities with regard to the planning, production and management of human resources; and
- ◆ Prescribe circumstances under which health care personnel may be recruited from other countries to provide health services in the Republic.¹⁹

While the Health Bill goes some way towards creating an enabling framework within which to address the production, retention and distribution of human resources in the health sector, care must be taken to ensure that policies do not simply reinforce existing inequities, especially between urban and rural areas.

Certificate of Need

Section 36 of the proposed National Health Act makes provision for a certificate of need to be issued before any health establishment (ranging from a large hospital to a private medical practice) is opened, extended or expanded.¹⁹ Section 36(3)(k) states that one of the factors that must be taken into account when evaluating an application for a certificate of need is 'the need to ensure the availability and appropriate utilisation of human resources and human technology'.

Data and Analysis

Distribution of health personnel

The early 1990s saw a significant migration of skilled people into SA from other SADC countries. Approximately 200 doctors left Zimbabwe for SA and Botswana in 1992. Given the pending end to apartheid, such movements raised concerns about a brain drain into SA, which it was suggested would reinforce regional inequities in skills and resources.²⁰

However, the demise of apartheid did not precipitate a huge inflow of skilled Africans from other African countries into SA as predicted, largely because of South Africa's stringent immigration policy. Since 1994, immigration into the country has declined substantially. This has led to a governmental review of its immigration policy and South Africa's new immigration laws are likely to have a significant impact on the skill mix and distribution of trained personnel. Signed in 2002 amid much controversy, the Immigration Act seeks to regulate the influx of foreigners and residents into the country to promote economic growth in the country by inter alia 'increasing skilled human resources in the Republic'.²¹ The Act heralds a 'new openness to immigration with skills being the main criterion for immigrant

Table 2: Total number of Public Health Sector Posts and percentage vacant by province, 2001-2003

	EC	FS	GP	KZN	LP	MP	NC	NW	WC	SA
Total number of health professional posts										
2001	97 929	14 103	42 899	39 591	22 603	9 472	3 820	15 570	21 659	268 122
2002	29 752	14 284	43 148	41 401	18 082	9 843	3 937	15 756	21 328	197 898
2003	21 991	12 104	32 873	37 338	15 452	19 018	3 248	11 589	15 401	169 121
2003 (filled)	15 751	7 176	22 375	28 205	13 376	6 201	2 360	7 764	13 268	116 547
Percentage of health professional posts vacant										
2003 (%)	28.4	40.7	31.9	24.5	13.4	67.4	27.3	33.0	13.8	31.1

Source: PERSAL⁷

selection' and will address a growing skills crisis in the country.²²

Currently available data do not lend themselves to tracking the movement of health personnel at facility level. However national and provincial data are available and give a broad understanding of trends. Nationally the percentage of vacant public sector posts shrank from 57.3 in 2001 to 31.1 in 2003.⁷ However during this same period, arising from interventions to clear out non-functioning posts and clean up the data, the actual number of public sector posts was reduced from 268 122 to 169 121, of which 116 547 were filled in 2003.

Only Western Cape and Limpopo have less than 20% of their posts vacant. The situation in Mpumalanga is dire with more than two thirds of posts unfilled.

The certificate of need clause contained in the National Health Bill seeks to contribute to a more even distribution of health services and to strike a more equitable distribution between public and private sectors, to regulate and respond to the inequitable distribution of doctors between urban and rural areas and to redirect doctors from oversupplied urban areas to undersupplied rural areas. In addition, it is being envisaged as a 'sensitive tool for identifying distribution and other problems in the health system' and has been successfully implemented in many countries.²³

The proposed implementation of the certificate of need procedure has sparked significant protest from the medical community. The basis of the opposition to the clause is that such a prerequisite is a violation of the constitutional right to live and work where one pleases. Professional bodies representing medical doctors have suggested that the certificate of need will have the effect of driving doctors away from the country and will exacerbate the existing brain drain in the country.

The newly implemented rural and scarce skills allowances are designed to address the 'dual inequity' in the distribution of health professionals – between the public and private sectors and between urban and rural areas. It has also been contended that the introduction of these allowances will help to curb the alarming number of health professionals opting to work in other countries. The effects of these allowances need to be carefully monitored to assess whether they will be able to stem the brain drain from the health sector. One of the problems associated with these allowances is that it is not uniformly available to nurses working in rural and under-served primary health care settings. The allowance, also applicable to those performing community service, will be payable to occupational groups that have been designated into the 'scarce skills' category – and a non pensionable scarce skills allowance to the value of 10% and 15% of the relevant annual salary notch will be paid (Table 3).¹⁶

There are two components of the rural allowance. Allowances will be paid to health professionals, including community service workers and interns, working in areas identified as nodes in terms of the Integrated Sustainable Rural Development Strategy (ISRDS) and in Public Service Coordinating Bargaining Council (PSCBC) designated institutions and other inhospitable areas identified by provincial departments of health.¹⁷

The introduction of community service (CS) has had limited success in increasing supply of personnel in under-served areas. Various problems have arisen including students opting for urban in preference to rural placements where there is greatest need. The absence of adequate supervision for community service professionals (CSPs) in rural settings has also been deleterious to the scheme – in some hospitals the CS doctor ends up as the *only* doctor.^b One study found that between 20% to 45% of all CSPs were planning on working overseas after completion of their community service.¹⁵

b Debbie Jackson, Department of Public Health, University of the Western Cape, January 2004, personal communication.

The total number of CSPs²⁴⁻²⁶ has declined over the past few years, which raises questions of where in the health system newly graduated professionals who have not completed community service, are located. Possibilities include that they might have left the country or have decided not to work as

medical practitioners. Either way, the loss to the country is significant. It is unclear how the new scarce skills and rural allowances will impact on the decisions of young professionals to leave the country.

Table 3: Allocated percentages of Scarce Skills Allowance per type of professional

	Profession	Percentage
Registered health professionals (designated categories)	◇ Medical and Dental Specialist	15%
	◇ Dentist	
	◇ Pharmacist	
	◇ Pharmacologist	
	◇ Dental Technician	10%
	◇ Psychologist	
	◇ Dietician and Nutritionist	
	◇ Occupational Therapist	
	◇ Physiotherapist	
	◇ Radiographer	
	◇ Speech Therapist	
	Professional Nurses with qualifications in the following specialities and performing functions as pertaining to the following specialities: ^c	10%
	◇ Operating Theatre Technique	
◇ Critical Care (intensive care)		
◇ Oncology		

Source: Public Health and Welfare Sector Bargaining Council Agreement No. 1 of 2004¹⁶

Table 4: Rural Allowance per category of staff by designated area

Registered health professionals (categories)	Percentages: ISRDS nodes	Percentages: PSCBC designated institutions and other inhospitable areas identified by provincial departments of health
Dental Specialist	22%	18%
Dentist		
Medical Doctor		
Medical Specialist		
Dental Technician	17%	12%
Dietician and Nutritionist		
Occupational Therapist		
Pharmacologist		
Physiotherapist		
Psychologist		
Radiographer		
Pharmacist		
Speech Therapist		
Professional Nurse excluding student professional nurse		

Source: Public Health and Welfare Sector Bargaining Council Resolution No. 2 of 2004¹⁷

c Professional Nurse generically refers to nurses registered with the SANC and not to rank.

Table 5: Number of Community Service Dentists, Doctors and Pharmacists by province, 2001-2003

	EC	FS	GP	KZN	LP	MP	NC	NW	WC	SA
Number of CS Dentists										
2001	15	10	12	32	15	25	8	26	10	164
2002	9	11	1	9	5	7	2	3	0	53
2003	9	20	24	26	12	34	4	36	13	200
Number of CS Doctors										
2001	149	79	126	271	150	107	34	97	141	1 194
2002	68	75	128	248	89	95	33	77	152	1 005
2003	100	73	164	231	103	113	41	73	153	1 092
2004	135	66	89	284	138	142	53	122	92	1 162
Number of CS Pharmacists										
2001	33	39	68	82	33	39	5	31	48	406
2002	18	50	144	91	38	34	7	19	61	484
2003	27	22	70	69	22	19	6	27	57	341

Source: DoH Annual Reports,^{24, 25} South African Pharmacy Council²⁶ and Siphso Sibuyi, NDoH personal communication

Note: The national figures also include CSPs allocated to SA Military Health Services (SAMHS) and Correctional Services, and are therefore greater than the sum of provincial figures.

Distribution of Medical Practitioners

In 2003, there were 7 645 medical doctors in the public health sector⁷ – this amounts to an increase of almost 5% from the previous year. Nationally, the ratio of medical practitioners per 100 000 public sector dependant population fell from 21.9 in 2000 to 19.7 in 2003 (Table 7). The distribution of these doctors confirms the rural urban divide with regard to availability of skilled health personnel. For example, in the North West, the number of doctors per 100 000 population in the public sector is 11.7 – this figure in the Western Cape stands at 31.9. With regard to the racial breakdown of medical practitioners in the public sector, 2 470 are African, 299 Coloured, 1 408 are Indian and 3 268⁷ are White, demonstrating again, the degree of discordance between the racial demographics of the country and the number of medically trained doctors in the public sector.

Improved ratios in the Eastern Cape, Limpopo, Mpumalanga and the Northern Cape between 2002 and 2003 perhaps reflect better processes for allocating CS doctors to rural areas. In the case of the Northern Cape, the province experienced a drop in population in the period between the 1996 and 2001 and this may have also contributed to the improved ratios in that province.

Using computer simulated models developed by the WHO, a variety of different models were constructed to project supply

and demand of various categories of health professionals in SA. The figures described below assumed an annual population growth of 2% over a 30 year period up to 2029 and also take into account 'variable net loss rates of graduates for each professional category'. In the case of medical doctors, it was projected that with an estimated net loss of 30% of South Africa's medical graduates, the registered doctor^d population ratio would decline from 1:1290 population in 1999 to 1:1320 in 2029 (equivalent to 77.5 and 75.8 doctors per 100 000 population respectively). The report points out that this ratio is still better than Thailand and Malaysia for example where the ratios are 1:3649 (1998) and 1:2500 (1995) respectively.⁸

Distribution of Medical Specialists

In 2000, the number of public sector medical specialists per 100 000 population was 11.2 – by 2003 this had decreased to 8.9 (Table 7). The geographical spread of medical specialists is also cause for concern and raises significant equity issues. In the Western Cape the number of medical specialists per 100 000 population in the public sector was 32.6, in Gauteng it was 19.7 while in Mpumalanga it was a mere 0.7.⁷ One possible reason for this current distribution pattern is the existence of more tertiary and academic hospitals in the Western Cape and Gauteng.

d Equivalent to medical practitioners plus medical specialists.

The racial composition of medical specialists also raises equity considerations. Of the 3446 medical specialists in the public sector, 2302 are White, and 498 are African.⁷

Distribution of Medical Researchers

There was a decline in the total number of medical researchers in the public sector from 189 in 2002 to 136 in 2003. Of these, in 2002, 56 and 60 were in Gauteng and the Western Cape respectively. In 2003 the figures were 10 and 65. Many of the more rural provinces have no medical researchers at all.⁷ Given the influence of academic institutions and researchers on the effectiveness of service delivery and roll-out of new services, the drop in the number of medical researchers, and their concentration in the Western Cape and to a lesser extent Gauteng, is unfortunate. The absolute shortage, and decline in the number of medical researchers in the public sector suggests that this might be an area that could benefit from proactive policy measures.

Distribution of Nurses

The shortage, and sometimes complete absence, of doctors in under-served rural clinics implies that the role and distribution of nurses, especially professional nurses, has become crucial to the functioning of the public system, especially at clinic level.

Less than half of professional nurses registered with the South African Nursing Council (SANC)²⁷ work in the public sector, highlighting the relative maldistribution between the private and public sectors. According to the PERSAL system, there are approximately 42 000 vacant nursing positions in the public sector, highlighting the difficulty in recruiting staff to the public sector. Although the total number of nurses registered with SANC has increased between 1998 and 2003, the numbers in the public sector are more or less static between 2000 and 2003, indicating the possibility of an increasing number of nurses opting to work in the private sector. In addition, there is the possibility that many of the nurses registered with the Council could, in fact, be working overseas creating an even greater loss than the figures appear to suggest. Both options carry significantly improved conditions of work and remuneration packages.

There has been significant brain drain of nurses from the country. In 1998/99 for example, 599 nurses had registered with the UK based Nursing and Midwifery Council. By 2001/02, this figure had increased to 2114.²⁸

While the actual number of nurses in the public sector has remained relatively stable, these numbers must be seen in the context of an increase in the country's population and the number

Table 6: Total number of professional nurses registered with SANC, number and percentage working in the public sector

	EC	FS	GP	KZN	LP	MP	NC	NW	WC	SA
Number of professional nurses registered with SANC										
1998	-	-	-	-	-	-	-	-	-	91 011
1999	-	-	-	-	-	-	-	-	-	92 390
2000	-	-	-	-	-	-	-	-	-	93 303
2001	-	-	-	-	-	-	-	-	-	94 552
2002	11 447	7 136	26 734	17 758	6 748	4 218	1 820	6 265	12 822	94 948
2003	11 678	7 216	26 871	18 343	7 006	4 420	1 856	6 330	12 995	96 715
Number of professional nurses working in the public sector										
2000	6 429	2 909	7 984	9 195	5 058	2 306	839	2 855	4 159	41 734
2001	5 713	3 004	8 078	9 058	5 264	2 359	852	3 002	4 125	41 460
2002	4 799	3 023	8 074	8 770	5 538	2 288	869	2 996	3 958	40 318
2003	5 752	3 049	7 924	9 139	5 541	2 460	950	2 934	3 812	41 563
Percentage of registered professional nurses working in the public sector										
2003 (%)	49.3	42.3	29.5	49.8	79.1	55.7	51.2	46.4	29.3	43.0

Source: PERSAL⁷ and SANC²⁷

of people dependent on the public health system due to escalating costs of private medical care. The ratios of public sector nurses have been declining since 2000 and there is an uneven concentration across provinces.

The ratios of professional nurses have declined from 120.3 per 100 000 in 2000 to 107.1 in 2003 (Table 7).⁷ Gauteng and Western Cape have seen steadily decreasing falls in nursing ratios across all categories of nurses. The trends are less consistent in other provinces where despite the general fall in ratios, the Eastern Cape, Free State and Mpumalanga and Northern Cape have seen an increase in the ratios of professional nurses between 2002 and 2003. The ratio of nursing assistants in the public sector has also decreased, particularly in the Western Cape and Gauteng, while the Eastern Cape has seen an increase in the numbers of both nursing assistants and registered nurses which is especially encouraging in light of the province's poor socio-economic position and the relative under-resourcing of the health system.

Of the 41 563 nurses in the public sector, 80% are African, 10.5% are Coloured, 7.4% are White and just over 2% are Indian.⁷ These percentages are consistent with the demographic profile of the number of student nurses in the public sector.⁷ The Pick Report has recommended that staffing ratios be revised so that the ratio of bed-to-professional nurses exceeds the bed-to-enrolled-nurse ratio, that the training of enrolled nurses be increased and that there be a recognition of the training and experience of nursing assistants for the purposes of continuing their studies.⁸

Distribution of Pharmacists

Pharmacists tend to be located predominantly in the private sector; there are over 10 000 pharmacists registered with the South African Pharmacy Council, of which approximately 11% can be found in the public sector.⁷ Due to the shortage of pharmacists in the public sector, community service for pharmacists was introduced in 2001, which has resulted in slightly higher numbers of pharmacists in the public sector. The impact of community service on long-term retention of pharmacists has been limited. Fifty-two percent of the 2001 community service pharmacists indicated they intended to work in the private sector after completion of community service, 21% planned to go overseas, 9% into industry and 18% intended to remain in the public sector.¹⁵ As with most other categories of health staff, the impact of the scarce skills and rural allowances in attracting and retaining staff in the public sector, especially under-served areas, remains to be seen.

The Pick Report has pointed out that the scarcity of pharmacists in the public sector arises from maldistribution rather than a lack of pharmacists in the country. Assuming a 30% loss of pharmacy graduates per annum to other countries and a 2%

annual population growth, the ratio of pharmacists to population in 2029 was estimated at 1:3840 (equivalent to 26 pharmacists per 100 000 population) – compared to 1:3920 in 1999 (equivalent to 25.5 per 100 000 population). In this regard, the report advocates for increased utilisation, and extending the scope of practice, of pharmacy assistants. The latter would facilitate the dispensing of medicines by pharmacy assistants under the supervision of pharmacists who would not necessarily have to be on site.⁸

Distribution of Dentists

Overall the ratio of dentists per 100 000 population is 1.58 (Table 7). Interprovincial inequities in distribution are particularly stark with some provinces having 4 times as many dentists in the public sector than others.⁷ Notwithstanding the introduction of community service for dentists 2000, the number of dentists in the public sector has declined steadily over the years. Many dentists performing community service have cited the gap between the skills they acquired at university and the prevailing oral health issues they encountered and the equipment available at their stations to utilise such skills.¹⁵

Using the WHO computer simulation models and based on a population growth rate of 2% per annum, it has been speculated that the supply of dentists is exceeding the population growth rate. Based on a 25% net loss of graduates to other countries, it has been estimated that the dentist population ratio will improve from 1:9400 in 1999 to 1:7800 by 2029 (equivalent to 10.6 and 12.8 dentists per 100 000 population respectively). The study concluded that the distribution of dentists between the private and the public sectors needed to be addressed and recommended that consideration be given to revising the annual intake of dental students.⁸

Distribution of Environmental Health Practitioners

The profile of South African health problems, many of which could be alleviated through improved and affordable access to water, sanitation, proper housing and clean energy sources underscores the centrality of this cadre of health professional. The increase in the number of environmental health practitioners (EHPs) from 2002 to 2003 is encouraging (Table 7). However, there is still a shortage of EHPs in the public sector with most graduates preferring to work for parastatals or the private sector. The 2002 South African Health Review reported that less than three in ten students find work in provincial or local government after completion of their studies.²⁹ The target EHP population ratio in SA is 1:15 000.²⁹ However, based on current figures for the public sector, it would appear that this ratio is closer to 1:50 000.

A critical challenge remains the re-orientation of the profession from a reactive approach to a more proactive, preventative and

Table 7: Distribution of public sector health personnel per 100 000 public sector dependent population by province, 2000-2003

	EC	FS	GP	KZN	LP	MP	NC	NW	WC	SA
Dental practitioners per 100 000 population										
2000	0.80	1.10	4.90	0.80	0.60	1.80	1.60	1.40	3.80	1.70
2001	0.90	1.29	3.88	0.66	0.89	1.89	1.97	1.59	3.70	1.71
2002	0.58	1.35	3.71	0.70	0.78	2.08	1.48	1.32	3.61	1.59
2003	0.99	1.50	2.79	0.70	1.01	1.75	1.87	1.49	3.35	1.58
Enrolled nurses per 100 000 population										
2000	59.2	36.1	46.6	85.0	63.6	42.7	44.0	46.1	60.0	59.7
2001	52.4	30.5	39.2	85.1	57.6	46.1	40.9	42.2	61.1	55.8
2002	46.9	27.9	41.5	88.3	55.4	48.3	33.5	39.2	59.6	54.5
2003	45.1	24.7	38.6	89.2	59.3	47.7	37.5	35.6	52.2	53.3
Environmental Health Practitioners per 100 000 population										
2002	1.26	1.60	0.30	1.63	3.11	2.00	0.74	1.29	0.43	1.42
2003	2.35	2.31	0.32	2.44	4.03	2.97	2.27	2.00	0.48	2.02
Medical Practitioners per 100 000 population										
2000	12.3	24.3	36.6	24.0	12.5	16.4	28.9	11.9	39.7	21.9
2001	12.2	22.2	28.7	22.3	12.2	16.4	26.3	12.2	32.5	19.8
2002	11.3	23.4	29.1	22.4	9.1	16.6	24.2	11.8	33.1	19.3
2003	12.7	23.1	25.4	21.3	14.3	17.9	28.4	11.5	31.9	19.7
Medical Researchers per 100 000 population										
2002	0.00	0.70	0.95	0.06	0.04	0.00	0.00	0.03	1.97	0.50
2003	0.00	0.30	0.15	0.04	0.22	0.00	0.13	0.00	1.94	0.35
Medical Specialists per 100 000 population										
2000	2.6	10.9	32.4	7.4	1.0	1.2	2.0	1.5	42.7	11.2
2001	2.6	9.3	24.6	6.5	0.8	0.6	2.4	1.7	44.5	10.3
2002	2.3	9.2	25.0	6.3	0.7	0.7	2.2	1.5	39.3	9.8
2003	2.3	9.2	19.7	6.0	1.0	0.7	2.7	1.5	32.6	8.9
Nursing Assistants per 100 000 population										
2000	72.3	94.4	108.2	71.8	57.6	59.6	82.2	79.1	131.2	81.3
2001	65.4	90.4	93.3	73.5	51.3	51.5	78.4	79.3	135.3	77.3
2002	59.9	93.5	92.7	72.2	53.6	53.3	77.2	77.4	134.9	75.9
2003	71.0	98.5	75.4	70.1	68.6	46.5	86.0	73.8	118.2	74.8
Pharmacists per 100 000 population										
2000	2.3	2.3	5.1	3.3	2.0	2.3	2.3	1.6	6.1	3.1
2001	1.8	3.0	4.6	3.5	2.2	3.1	3.1	2.4	7.3	3.4
2002	1.7	3.5	4.6	3.4	2.2	2.9	2.8	2.0	7.3	3.3
2003	2.2	3.2	3.7	3.2	2.2	2.7	3.1	2.1	6.4	3.1
Professional nurses per 100 000 population										
2000	106.1	128.9	172.5	119.8	104.6	90.5	122.3	94.3	139.9	120.3
2001	91.2	125.2	138.7	114.4	101.7	89.0	119.7	95.7	137.5	111.9
2002	74.9	124.1	136.3	109.0	110.5	89.6	107.1	94.1	130.0	106.8
2003	98.5	130.7	115.1	107.3	119.3	93.7	127.1	88.9	113.9	107.1

Source: PERSAL⁷

education role so that 'potential hazards can be understood by local residents identified and addressed before they become a problem'.²⁹ The involvement of EHPs in combating the worm infestation problem among children and in water and sanitation projects in Khayelitsha stands as an instructive example of the potential role EHPs can play in public health issues.

An appropriate proportion of EHPs are of African origin (in 2003, 681 of a total of 786 (87%) EHPs were African), so in theory issues of language should not stand in way of a shift in focus.

Community Health Workers (CHWs)

Where they exist, community health workers are the front line workers dealing with prevailing health issues and as such have an important role to play in health promotion. Their role becomes especially critical in the context of the Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment (the Operational Plan), in which it envisaged that CHWs will assist in promoting adherence, providing on site care and undertaking outreach programmes.³⁰

The entire CHW system in SA remains fragmented and patchy. A *lekgotla* hosted by the NDoH in October 2003 sought to address this issue and present a framework for coherence and standardisation of CHW systems and to develop strategies to accelerate the implementation for an expanded CHW worker programme. At the close of the meeting, the NDoH undertook to appoint a task team to review, standardise the training curriculum, set norms and standards for beneficiary ratios and develop an implementation plan.³¹ Given that there are approximately 40 000 community health workers at present,³²

it is crucial that a coherent plan to address the training and development needs of this cadre of health worker be carefully crafted.

In February 2004, the Community Health Workers Programme was launched. The NDoH envisages CHWs as community based generalist health workers in possession of health promotion, disease prevention, primary health care and health resource networking and coordination skills and competencies. CHWs will not be directly employed by the government but by NGOs (receiving grants from the NDoH for this purpose) at a recommended minimum stipend of R1000 per month. Outstanding issues that remain include exploring the possible tensions and synergies that may evolve between community health workers and community development workers, and the future role of CHWs within the broader human resources for health strategy.

Traditional Healers

There are an estimated 200 000 traditional healers practising in SA³⁰ – more than the all the categories of allopathic personnel combined. In addition, it has been suggested that 80% of South Africans consult traditional healers before consulting biomedical practitioners.³⁰ As the largest cadre of health workers in the country, their role in alleviating the shortage of health personnel, especially in rural areas, must be explored.

A Traditional Health Practitioners Bill that aimed to regulate the registration and practice of traditional healers has been produced. However, the Bill was not passed and will be re-introduced in the next parliamentary session. Stakeholders

Table 8: Estimated additional staff required to implement the Operational Plan by profession

Category of staff	Through March 2004 (full time equivalent (FTE))	April 2004-March 2005 (FTE)	April 2005-March 2008 (FTE)
Medical Officers	76	271	628
Professional Nurses	228	813	1 883
Enrolled Nurses	152	542	1 255
Assistant Nurses	152	542	1 255
Pharmacists	76	271	314
Pharmacist Assistants	76	271	314
Dieticians / Nutritionists	76	136	314
Social Workers	38	136	314
Lay Counsellors / CHWs	760	2 710	6 275
Administrative Clerks	152	542	1 255
Total	1 786	6 233	13 805

Source: Comprehensive HIV/AIDS care, management and treatment plan³⁰

involved in re-introducing the Bill must take into account how and where traditional healers fit into a broader human resource for health strategy for the country – especially as it is envisaged that they will play a crucial role in the ‘Operational Plan’.

Impact of HIV/AIDS on Human Resources

Any human resource plan for health in SA must take into account the increased load placed on existing staff due to HIV/AIDS, and the attrition of health care workers due to AIDS related mortality. Attrition can also be expected as a result of worker burnout and overload due to increased burden of care through deaths from AIDS and reluctance to work in the field for fear of contracting the disease.¹

In a study of the impact of HIV/AIDS on the health sector, almost 16% of health workers employed in both the public and private sectors in Free State, Mpumalanga, KwaZulu-Natal and North West, were found to be living with HIV/AIDS.³³

One of the potentially enduring problems associated with the ‘Operational Plan’ are the human resources that will be needed to implement it. In addition to existing staff, it has been estimated that the following additional staff will need to be recruited (Table 8).

Production of Health Personnel

Training of medical practitioners

During the apartheid era, the majority of medical students studying in South Africa’s universities and technikons were White. Following the country’s first democratic elections in 1994, there

was a concerted effort to provide prospective students from historically disadvantaged race groups with training opportunities in fields that had hitherto been dominated by Whites. Such an initiative was important not only from an equity perspective but also to improve health care delivery.

However, nine years later inequities still exist in many tertiary institutions. Promoting the equitable training of medical students is not an easy task for a variety of reasons. Many Indian, Coloured and, especially, African students must overcome poor high school preparation to succeed and many cannot afford the costly school fees that come with a medical school education.³⁴

In 1998 it was noted that to impact on the production of doctors in SA, admission criteria needed to be designed to redress the imbalances, and programmes were needed to support the learning requirements of African students in particular to reduce attrition.³⁵

In 2003, 45.9% of medical student admissions in the country were African, 30.0% were White, while Coloured and Indian students made up 9.3% and 14.9% of the student population, respectively.

There were more African students being admitted into the country’s eight medical schools from 1999 to 2003 than any other race.^e

However, while the overall picture shows a large increase in the number of African students who have registered with medical schools, a school-by-school analysis shows there are still large discrepancies in student populations between various institutions (Table 9).

Table 9: New medical student registrations by race and gender, 2003

	African		Coloured		Indian		White		Total
	male	female	male	female	male	female	male	female	
Cape Town	33	40	8	30	15	22	17	36	201
Free State	22	20	2	2	1	1	50	52	150
Medunsa	86	58	0	0	13	12	2	1	172
Natal	78	72	2	8	17	26	2	5	210
Pretoria	25	46	3	4	7	3	28	66	182
Stellenbosch	12	19	20	42	7	19	43	56	218
Transkei	38	39	1	2	3	8	1	0	92
Witwatersrand	16	14	0	1	13	33	14	31	122
Total	310	308	36	89	76	124	157	247	1347

Source: Individual universities except Transkei, where source is Health Professions Council of SA, 2003

e Department of Education, July 2003, personal communication.

Despite an increase in the number of African students entering medical training, racial differences in the rates of attrition are disturbingly high. From 1994 to 1998, the drop out rate for African students was 19.9% compared to 3.7% for White students.³⁴

The University of KwaZulu-Natal^f has implemented a policy wherein they reserve first year seats as follows: 69% for African, 19% for Indian and 9% for Coloured and 3% for White students respectively. The school has decided that it may deviate from this policy only if the university is unable to fill those seats with qualified candidates of the specified race.

The University of Cape Town has implemented a programme called the Intervention Programme (IP) for under-privileged students from poor educational backgrounds. The IP replaces the Academic Development Programme where students took four years to complete the first three years of their studies.

At the keynote address of the World Organization for Family Doctors (WONCA) world conference on rural health in 2002, physicians were described as 'tradesmen with medical degrees... selected for our ability to pay for access to medical schools and pass examinations that tax the memory'.³⁶

Many universities now utilise Alternative Admissions Tests (AATs) because matric results amongst under-privileged students often mask true potential and abilities. They are also a way for universities to actively find and admit under-privileged students who have a real chance of succeeding at their studies. Through these efforts, some historically White medical schools – Cape Town, Pretoria, Stellenbosch and Witwatersrand – have shown changes in racial composition of their students to varying degrees.

Academic results now account for 75% to 80% of the University of Cape Town, Stellenbosch and Witwatersrand medical schools admission criteria. Non-academic achievements such as sports and cultural activities are also taken into account when considering applications.³⁷

While the current move towards admitting medical students with appropriate life skills has met some opposition, it signifies an important paradigm shift in who is selected for medical training. It is expected that the new admission policies will have a significant impact on attrition rates and together with the development of bridging and academic support programmes, should result in lower attrition levels than previously. In addition, ensuring representivity in student intake is likely to have an impact on where doctors choose to work.

Of the new students admitted into South African medical schools in 2003, 57% were female. Females in every racial group except Africans outnumbered their male counterparts. Even among Africans, representation was almost equally balanced with 49.8%

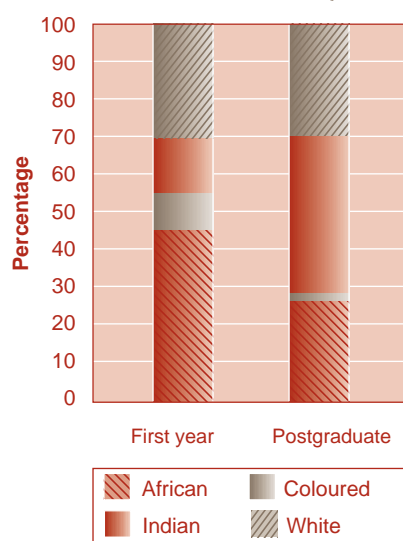
African females and 50.2% African males.

Postgraduate training

In 1998, it was noted that more White students entered postgraduate medical training than other race groups when compared to first year admission patters. It was speculated that a possible explanation for this was that postgraduate study was a 'luxury' available only to those from privileged backgrounds.³⁵ This trend has altered.

Figure 1 suggests that Indian students appear to be the demographic group that are most likely to carry their education the farthest. The number of White students that continue into postgraduate studies is almost identical to those entering first year. However, while Indian students make up 14.9% of first year students, they are 44.3% of postgraduates. African students make up 45.9% of first year students but only 26.7% of postgraduates. Coloured students comprise 9.3% of first year students but only 2.3% of postgraduates.

Figure 1: Percentage of first year and postgraduate medical students by race, 2003



Source: Individual universities and Health Professions Council of SA

Training of Nurses

There are a variety of ways in which training for a career in nursing can be undertaken apart from state sponsored nursing programmes. For example, the private sector trains its own nurses. Non-governmental organisations and other private institutions also offer training. In order to be recognised as proper training institutes, all nursing schools are required to be registered with the SANC. Entrance requirements for training vary and factors such as recognition of prior learning are also taken into account during selection processes.

f Previously University of Natal.

It has been estimated that even with recruitment to address the 25% vacancy rate in the public sector, there will be a shortfall of almost 19 000 nurses by 2011.³⁸

Due to the shortage of nurses, the new Nursing Bill makes provision for the introduction of community service for nurses for a period of one year before they can be registered with the SANC. The stated intention of such a system is to provide nursing care in rural and under-served areas. The proposal has been met with opposition from some private sector health care organisations that subsidise the training of their nurses.

Training of Pharmacists

Between 1999 and 2001, the majority of students enrolled in universities for training as pharmacists were White females. The next largest group was African females, which increased in numbers from 1999-2001.

Conclusions and Recommendations

South Africa does not as yet have a comprehensive human resources for health strategy, and this has resulted in piecemeal interventions that do not necessarily address the wide spectrum of issues that impact on the production, retention and distribution of human resources. It is clear that there is an urgent need to systematically analyse trends, develop perspectives, define response strategies and generally develop a coherent plan to address this issue. Such a plan should incorporate an appropriate human resource model that reflects the demands upon and needs of South Africa's health system, and in which the health system is understood to comprise both the western scientific practitioners as well as traditional practitioners. An appropriate mix of health care workers must take into account the potential role of community health workers, traditional healers and traditional birth attendants, especially in light of the role that it is anticipated these cadres will play in the roll-out of ART.

The framework outlined in the 2001 to 2005 goals, objectives and indicators contains a number of milestones to be reached as well as some indicators that can be monitored on an ongoing basis. Further work to develop the format of the indicators so that they are more amenable to measurement might assist with ongoing monitoring of progress.

The deleterious impact of the inadequate supply and distribution of personnel on the system includes a negative effect on the overall functioning of the health system that is most severe in under-served areas, with loss of institutional memory, unmanaged disease burdens and additional costs to households of seeking care at higher levels.¹ The impact of HIV is exacerbating personnel shortages and improved distribution

is going to be critical to the success of plans for providing ART.

Migration of health care workers plays a significant role in the shortage and distribution of health personnel. There is a need to find ways to accurately monitor migration patterns and to assist in distinguishing between temporary and permanent migration. This will require greater attention being paid to the registration and recording. Internal migration between rural and urban areas cannot be separated from the larger understanding of migration within and out of the SADC region.

The introduction of the rural and scarce skills allowances will hopefully be a significant measure in supporting retention of health personnel. However, increasing salaries alone will not necessarily restore the sense of purpose that is required to make public services function. Other sources of motivation including developing professional satisfaction, self-realisation, social responsibility and prestige in health care professionals must also be undertaken.³⁹

In other countries measures to deploy and retain health professionals in rural areas include decentralisation of the location of training institutions, the introduction of recruitment quotas to ensure that the most peripheral areas are represented among medical students and making rural field experience during medical training compulsory.⁴⁰ Results have been mixed. Exposing and sensitising students to the dynamics of rural practices can develop and foster an interest in working in rural areas. This has been encouraged through providing appropriate training and selecting students from rural areas for medical training as these would be more likely return to rural practice.⁴⁰

Other strategies to improve the location of doctors in rural settings include continuing medical education using distance-learning methods such as information technology, the establishment of locum relief schemes to permit rural doctors to take study and recreation leave, respect for and the recognition of the rural doctor as part of a family unit and providing support and incentives for spouses and families, employment opportunities for doctors' spouses, improved accommodation facilities and suitable educational institutions for doctors' children.¹

Attention must be paid to monitoring and evaluating the implementation and impact of the rural and scarce skills allowances to assess their effectiveness, and consideration given to introducing non-financial incentives that respond to needs that have been identified by rural practitioners.

Suggestions for improving the training and production of health care personnel include emphasising interventions in promotive and preventative health, focusing on public and community health, exploring innovative training methods such as distance education, and developing other types of medical practitioners

such as medical assistants, clinical officers, community health workers and traditional healers.² As recommended by the Pick report, a new category of a mid-level worker is being planned for. The production and deployment trends of this cadre should be carefully monitored to assess their impact in improving staffing ratios in under-served areas.

At a national level, the Pick Report has recommended that consideration be given to revising and re-designing the scopes of practice of many categories of health care workers especially in light of the country's commitment to providing primary health care services to all. The report points out that many of the service components of the PHC package are currently being provided by health care workers in contravention of their scope of practice and recommends for example, that some of the tasks traditionally performed by upper level professionals be delegated (with the necessary training) to personnel at lower levels. In addition, the report makes the following recommendations:

- ◆ An increase in the intake of enrolled nursing students, no increase in the intake of medical students, a modest reduction in the intake of dental students and an increased intake of clinical psychology students;
- ◆ A revision of targets for staffing health facilities so that the professional nurse to enrolled nurse ratio is reversed over time;
- ◆ A revision of the nursing curriculum and the recognition of prior learning of enrolled nursing assistants / auxiliaries;
- ◆ The revision of admission criteria – in particular the high premium placed on maths and science scores as crucial criteria for admission; and
- ◆ Designing a training system with multiple entry and exit points to facilitate ongoing and continuing education.⁸

Finally, the global environment which seeks to liberalise markets allowing for the provision of health care by foreign companies and facilitating the movement of health personnel under modes 3 and 4 of the General Agreement of Trade and Services (GATS) is a further threat to ensuring an adequate human resource supply in the health sector. Increased discussion and consultation between the Department of Trade and Industry and the Department of Health is necessary to ensure that international trade negotiations do not compromise South Africa's vision for its health service.

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