

Workforce development in South Africa with a focus on public health nutrition

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Abstract

Objectives: The present paper aims to review and report on the current and predicted future public health nutrition workforce in South Africa. Additionally, it examines ways in which the Department of Health (DOH) is striving to meet the increasing burden of nutrition-related diseases in South Africa.

Methods: The primary sources of data used for the review were reports from the Census office, South African health reviews, mortality and morbidity statistics, and documents from the Health Professions Council of South Africa.

Results: There are fewer than 2000 registered dietitians in South Africa and fewer than 600 of them work in the public health sector. Furthermore, professional nurses – who are the backbone of the primary health-care system and deliver the rudiments of basic nutritional care – are not being trained in sufficient numbers to meet population growth; in 2004 there was only one nurse per 4000 persons. This situation is aggravated by the growing burden of conditions associated with both overnutrition and undernutrition, as well as the enormous demands of the HIV/AIDS epidemic. The DOH is striving to meet these increasing needs by means of the Integrated Nutrition Programme as well as a National Human Resources Plan which includes numerous strategies to improve the quantity and quality of health professionals' training, including dietitians and nutritionists. This plan includes the objective of increasing the public health nutrition workforce to more than 250 newly trained dietitians and nutritionists per annum by 2010.

Keywords
Human resource development
Dietitians
Nutritionists

Padarath *et al.*⁽¹⁾ have highlighted the major challenges faced by the health sector in South Africa. They refer to the overall lack of personnel in key areas of the health sector; the inequitable distribution of personnel who are available; and the significant migration of health personnel from both the health sector and the country.

One of the key problems in overall health care is the unequal distribution of health-care personnel between the private and public sectors, between urban and rural areas, between formal urban and peri-urban areas, and between tertiary and primary levels of care. With the exception of Mauritius, South Africa has more professional health workers than any other country in sub-Saharan Africa. It is estimated that there are currently 69·2 physicians and 388 nurses per 100 000 persons in South Africa. However, a staggering 72·6% of general practitioners, 75·2% of medical specialists and 94·2% of psychologists are employed in the private sector. Furthermore, a large proportion of these are concentrated around urban centres⁽²⁾.

The solutions to these health issues are complex and multifaceted. However, workforce development is an

essential component of building capacity to address public health issues, including nutrition.

The present paper gives an overview of South Africa in terms of demographics, vital statistics and the burden of diseases. It examines the prevalence of nutrition-related disorders in different life stages and details the policies and strategies of the Department of Health (DOH) to improve the overall health of South Africans, with a focus on nutrition-related diseases. Then follow a description of the public health nutrition workforce and finally a discussion of the government's strategic plan for human resources in order to improve the current burden of diseases and to address the challenges in workforce development outlined above.

Understanding the sociodemographics of South Africa

South Africa is a country of many contrasts, portraying both first- and third-world characteristics. Covering an area of about 1·2 million km², it encompasses nine provinces

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and includes a population of some 46 million people of whom the majority are black African (Table 1). More than 50% of the population is urbanized. The annual growth rate of the population in 2000 was 1.9% and the unemployment rate 29.4%. The human development index (HDI) was 0.695, ranking 107th in the world. Its neighbour Angola had an HDI of 0.403 and ranked 161st⁽³⁻⁶⁾.

Furthermore, South Africa is a country of huge disparities between population groups; some of which can be observed in Table 2. The black and 'coloured' (Euro-African-Malay) population has the poorest socio-economic profile, largely due to the discriminating policies of the previous regime which governed in a manner that favoured the white, more affluent population. Even

after 12 years of democracy large differences are still visible between the white population and people of colour. These are illustrated by the fact that only 55% of the black population lives in formal houses, 39% has electricity for cooking and less than 20% has piped water inside the household (Table 2)⁽³⁻⁶⁾. Hence, a large proportion of the population is still living in conditions of poverty with all the associated diseases resulting from inadequate housing, poor diet, poor sanitation and unsafe water. This sector of the population still needs extensive health promotion with regard to the basic rudiments of health, including diet, and there needs to be an adequate workforce at community level to deal with these aspects. This means developing a workforce that is able to interact with people in the communities where they live, particularly in rural areas where resources are poorest.

Table 1 Demographic and socio-economic indicators for South Africa⁽³⁻⁶⁾

Demographic indicators	
Average household size, 2001 (persons)	3.8
Population, 2005 (persons)	46 888 200
Population density, 2005 (%)	38.5
Rural percentage, 2001 (%)	42.5
Total fertility rate, 2001 (children)	2.8
Socio-economic indicators	
No schooling, 2001 (%)	17.9
GDP rural, 2001 (PPP\$)	2314
GDP urban, 2001 (PPP\$)	9023
HDI, 2002	0.731
Unemployment rate, 2004 (%)	27.8
Poverty prevalence, 1998 (%)	40.0

GDP, gross domestic product; PPP\$, purchasing power parity dollars; HDI, human development index.

Burden of diseases in South Africa

In 2000, the top causes of death in South Africa were HIV/AIDS (29.8%), stroke (5.8%), IHD (5.6%), violence (5.3%), tuberculosis (5.1%), lower respiratory-tract infections (4.3%), diarrhoeal diseases (3.2%), hypertensive heart disease (3.1%), road accidents (3.1%) and diabetes mellitus (2.6%)⁽⁷⁾. The infant mortality rate and the under-5 mortality rate were 59 and 100 per 100 000 deaths, respectively (Table 3)⁽⁸⁾. There were large differences between provinces (not shown) with, for example, Western Cape having an under-5 mortality rate of 46 per

Table 2 Demographic and socio-economic indicators for South Africa by population group⁽³⁻⁶⁾

Indicator	African	Coloured	Indian	White	All
Adult literacy rate (%)	83.0	91.4	95.6	99.3	85.9
No schooling (%)	22.3	8.3	5.3	1.4	17.9
GDP (PPP\$)	2713	4680	10 382	27 942	5916
Households by type (%)					
Formal	55.5	85.7	92.7	95.1	63.8
Informal	20.4	7.4	1.1	0.5	16.4
Other	5.5	4.1	4.8	3.3	5.0
Traditional	18.7	2.8	1.4	1.1	14.8
With electricity for cooking	39.3	82.3	97.1	96.6	51.4
Without toilet	16.9	6.0	0.8	0.7	13.6
With water inside	17.9	66.8	87.5	87.2	32.3
With refuse removal	45.3	84.1	96.8	90.8	55.4
Unemployment rate (%)	33.5	17.7	17.0	5.0	27.8

GDP, gross domestic product; PPP\$, purchasing power parity dollars.

Table 3 Mortality indicators for South Africa by population group, 2002⁽⁸⁾

Population group	Infant mortality rate (per 100 000)	Under-5 mortality rate (per 100 000)	Adult mortality rate (%)		Life expectancy (years)	
			Men	Women	Men	Women
African	67	117	65	52	45.8	50.4
Coloured	24	38	43	32	58.4	64.0
Asian	11	18	34	20	63.4	69.5
White	7	14	23	15	67.7	73.7
All	59	100	56	43	49.9	55.0

100 000 and KwaZulu-Natal having 116 deaths per 100 000. These large provincial differences are also found for most causes of death and are mainly associated with differing levels of development in different provinces. Overall, the disease pattern reflects one which has been coined the 'triple burden of diseases', i.e. HIV/AIDS, chronic diseases and those related to poverty and underdevelopment⁽⁷⁾. Diarrhoeal disease, lower respiratory-tract infections and malnutrition, when adjusted for HIV/AIDS co-morbidity, were responsible for 20.3% of all deaths among the under-5s in 2000⁽⁹⁾.

The burden of diseases provides many challenges for workforce development, particularly regarding nutrition-related disorders. These range from low energy intake and micronutrient deficiencies to overnutrition associated with high-kilojoule, energy-dense diets⁽⁹⁾. Furthermore, people of all ages are affected, ranging from pregnant women and infants to the elderly. Most of these disorders have one primary element in common: they are preventable. However, for this to take place requires an adequately trained and sufficient workforce in public health nutrition.

Nutrition-related diseases

Infants and children

In infants and children, the most common nutrition-related disorders associated with undernutrition and poverty are stunting, underweight and micronutrient deficiencies (Table 4)^(10–12). A national survey undertaken in 1999⁽¹¹⁾ showed that the prevalence of stunting was high (21.6%) while the prevalence of underweight was lower, yet still of concern (10.3%), in children aged 1–9 years. Fe-deficiency anaemia, vitamin A deficiency and I deficiency were still found to be common in pre-school children^(10,11). Furthermore, the prevalence of overweight and obesity found in the national survey was nearly as high as that for stunting (17%)⁽¹³⁾, raising concerns

around the issue of chronic diseases and the nutrition transition associated with urbanization⁽¹⁴⁾.

Free health care has been provided for children less than 6 years of age and pregnant women since 1994, and numerous policies and strategies have been implemented to meet national goals for optimal health. Despite these and a renewed focus on child health, the under-5 mortality rate appears to be rising⁽⁹⁾. This is mainly due to HIV/AIDS and also the continued morbidity and mortality from common infectious diseases and neonatal causes. South Africa has adopted the Millennium Development Goals, which include reducing the under-5 mortality rate by two-thirds by 2015⁽¹⁵⁾. Strategies to do this include the promotion of exclusive breast-feeding and nutrition intervention at health facilities to manage and prevent malnutrition⁽⁹⁾. These form an integral part of the Integrated Nutrition Programme (INP) which was developed by the Nutrition Committee of the DOH in 1994⁽¹⁶⁾.

A challenge for workforce development includes having trained health educators at district level to deliver health promotion to women who visit their local clinic and to those who do not. In this regard the DOH is planning to introduce nutritionists and mid-level workers to supplement the existing primary health-care (PHC) services which are frequently hopelessly understaffed with respect to trained health professionals.

Adolescents

The national Youth Risk Behaviour Survey was undertaken in adolescents (14–18 years) in 2002⁽¹⁷⁾. Nationally, the prevalence of stunting was 11%, underweight 9% and wasting 4%. At the same time the prevalence of overweight was high at 17%. The highest prevalence of stunting was found in 'coloured' and black adolescents, which is a reflection of poverty and poor nutritional intake. The high prevalence of overweight suggests that there is an increased consumption of energy-dense foods and a corresponding low level of physical activity. The

Table 4 Nutrition-related disorders/conditions of the South African population^(10–12,17,19)

Condition	Prevalence (%)
Anaemia: infants and children aged 0–72 months	21.4
I deficiency: school-aged children	16.2
Fe-deficiency anaemia: infants and children aged 0–72 months	5.0
Fe deficiency: infants and children aged 0–72 months	9.8
Vitamin A deficiency: infants and children aged 0–72 months	33.3
Stunting (<–2 sd height-for-age): children aged 1–9 years	21.6
Stunting (<–2 sd height-for-age): adolescents	11.4
Underweight (<–2 sd weight-for-age): children aged 1–9 years	10.3
Underweight (<–2 sd weight-for-age): adolescents	9.0
Wasting (<–2 sd weight-for-height): children aged 1–9 years	3.7
Overweight (BMI = 25.0–29.9 kg/m ²): children aged 1–9 years	6.0
Overweight (BMI = 25.0–29.9 kg/m ²): adolescents	17.2
Overweight (BMI = 25.0–29.9 kg/m ²): adult females	26.1
Overweight (BMI = 25.0–29.9 kg/m ²): adult males	19.9
Obesity (BMI ≥ 30.0 kg/m ²): adult females	30.1
Obesity (BMI ≥ 30.0 kg/m ²): adult males	9.3
Waist:hip ratio > 0.8: adult females	32.0
Waist:hip ratio > 1.0: adult males	7.4

low level of physical activity was confirmed by the finding that, nationally, 37.5% of adolescents have little or no physical activity⁽¹⁷⁾. Since there have been no national dietary surveys it is difficult to make conclusions on dietary intake; however, a survey at school shops indicated that a large percentage of urban children purchased energy-dense snacks and did not bring healthy foods to school⁽¹⁸⁾. Since adolescents are often infrequent visitors to PHC services, health policy makers need to consider how their needs can be met, particularly in terms of the prevention of teenage pregnancy, substance abuse and a high risk of becoming HIV-positive. Public health nutrition needs to focus on optimal nutrition for pregnant girls and those who are HIV-positive.

Adults

The nutritional status of adults was evaluated nationally in 1998 in the South African Demographic and Health Survey⁽¹⁹⁾. The percentage of underweight was found to be 12.9% and 5.6% in men and women, respectively, while the prevalence of overweight and obesity (BMI \geq 25 kg/m²) was 29.1% and 56.2%. Unfortunately there are no national dietary data on adult South Africans; however, other risk factors for chronic diseases indicate a high prevalence of inactivity, alcohol dependency (men, women: 27.6%, 9.9%), tobacco use (42.3%, 10.7%) and hypertension (22.9%, 24.6%)⁽¹⁹⁾. These statistics translate into a growing burden of chronic diseases in the population, particularly with respect to type 2 diabetes and CVD^(20,21). More recently (2003) it appears that the prevalence of underweight has also increased in the adult population, most probably due to the high prevalence of HIV/AIDS⁽²²⁾. Workforce development on its own may not have a major effect on changing the lifestyle of adults at national level. Rather, the government needs to make national policy which can impact positively on those risk behaviours that place adults at risk of nutritional diseases. This means increased legislation regarding harmful substances and improvements to the environment where adults and children work and play.

Governmental policies and strategies to improve the health of South Africans

The Health Sector Strategic Framework of the Department of Health (2004–2009)

The Health Sector Strategic Framework (HSSF)⁽²³⁾ was developed by the DOH in order to focus on priorities to improve the health of the nation. These priorities built on the achievements and experiences of the past decade since the democratic government was elected in 1994⁽²⁴⁾. The key focus of this framework is 'to improve health status through prevention of illness and the promotion of healthy lifestyles and to consistently improve the health care delivery system by focusing on equity, efficiency, quality and sustainability'.

Ten priorities have been identified by the DOH and are included in the 2004–2009 framework⁽²⁴⁾. It should be noted that human resource development has been identified as one of the ten priorities, as follows:

1. To improve governance of the national health system (NHS).
2. To promote healthy lifestyles.
3. To improve quality of care in the NHS.
4. To improve management of communicable and non-communicable diseases.
5. To strengthen primary health care and hospital delivery systems.
6. To strengthen support services.
7. To plan and develop human resource management.
8. To plan, budget, monitor and evaluate the NHS.
9. To prepare and implement legislation.
10. To strengthen international relations.

Furthermore, it needs to be recognized that human resources accounts for the largest expenditure of any health system⁽²⁾. All of the aforementioned priorities are dependent on having an adequately trained and sufficient workforce to bring about the required changes identified by the DOH.

The district health system and decentralization

In 1994 a National District Health System Committee was formed with the intention of moving away from a curative system to one based on the PHC approach⁽²⁵⁾. The PHC approach has been at the centre of policy formation since 1994, while the District Health System (DHS) was formally established in the National Health Act of 2003⁽²⁶⁾. The DHS is a more or less self-contained segment of the NHS. It includes all institutions and individuals providing PHC in a district, whether governmental, traditional or private organizations. It is reliant on being coordinated by an officer (manager) who has to pull together all elements of health activities, whether curative or preventive⁽²⁵⁾. The DHS can be seen as a system which harnesses the workforce into a manageable entity.

The PHC approach is a philosophy which forms the basis of the Alma Ata declaration of 1978 and a conceptual model for an ideal health system. It promotes essential health care based on sound methods made universally acceptable and equitable at a cost that is affordable, with community participation⁽²⁵⁾. The PHC philosophy underpins the basic human right to adequate basic nutrition. Hence 'nutrition' as a focus area in health has been given a very high priority by the DOH in the DHS and in its PHC approach. However, this translates into a high requirement for an adequately trained workforce to implement it in an affordable and sustainable manner. In the South African context health professionals are trained in the PHC philosophy and those working at primary care level would mainly be nurses and doctors. Other health professionals such as physiotherapists,

dietitians and occupational therapists are more commonly found at secondary and tertiary care levels. However, the DOH is planning to introduce mid-level workers who can complement the work done by professional health workers at primary care level.

The Integrated Nutrition Programme

The INP was developed in 1994 to facilitate a coordinated intersectoral approach to solving nutrition problems in South Africa in order to replace the fragmented, food-based strategies of the past⁽¹⁶⁾. The INP aims to implement programmes which are people- and community-driven, sustainable, and target the most vulnerable people. The programme is grounded in the UNICEF conceptual framework on the basic causes of malnutrition and uses the triple A cycle of Assessment, Analysis and Action⁽²⁷⁾. The INP should be implemented as an integral part of the overall PHC and DHS approach.

The INP has developed specific broad strategies in order to meet its objectives. These include the following⁽²⁸⁾.

1. Disease-specific nutrition support, treatment and counselling: This includes, for example, the counselling of patients with diabetes mellitus, hypertension or HIV/AIDS. The DOH has developed national dietary guidelines in this respect. Ideally these patients should be counselled by dietitians. However the reality is that there are few dietitians, particularly in rural areas; hence this counselling is done mainly by nurses or other health workers. A recent survey at health facilities showed that less than 5% of facilities had national dietary guidelines on the premises⁽²⁹⁾.
2. Growth monitoring and promotion: This activity forms a core activity of PHC and is generally done by nurses or community health workers at the facility level. However, this is done until the time the child is 18 months old or until the end of the immunization schedule. Thereafter children rarely visit the facilities for growth monitoring.
3. Nutrition promotion, education and advocacy: In this regard South Africa has been active in developing, testing and promoting its own food-based dietary guidelines⁽³⁰⁾ which are promoted by the DOH and the nutrition community to children aged 7 years and older (Table 5). To date, however, the effectiveness of these guidelines as a tool for education has not been evaluated in any community. It is also not known to what extent health professionals other than nutrition professionals know and promote the guidelines.
4. Micronutrient malnutrition control: The DOH introduced mandatory fortification of wheat and maize meal in 2003⁽³¹⁾. These staple foods are fortified with Fe, Zn, vitamin A, folate, vitamin B₆, thiamin, riboflavin and niacin. The choice of fortificants was based on the results of a national food consumption

Table 5 Food-based dietary guidelines for South Africans aged 7 years and above⁽³⁰⁾

Enjoy a variety of foods
Be active
Make starchy foods the basis of most meals
Eat plenty of fruit and vegetables every day
Chicken, fish, meat, milk or eggs can be eaten daily
Eat dry beans, split peas, lentils and soya regularly
Eat fats sparingly
Use salt sparingly
Drink lots of clean, safe water
If you drink alcohol, drink it sensibly
Use food and drinks containing sugar sparingly and not between meals

survey undertaken in children in 1999. The iodination of salt has been mandatory since 1995.

5. Food service management: The DOH has recently developed guidelines for food service units at state institutions⁽²⁸⁾.
6. Promotion, protection and support of breast-feeding: The DOH promotes a 'baby-friendly hospital initiative' and exclusive breast-feeding for the first six months of life. Health promotion in this regard is done most commonly by midwives and nurses who counsel women ante- and postnatally⁽²⁸⁾. The extent to which this has impacted on exclusive breast-feeding practices is still to be determined.
7. Contribution to household food security: One of the most successful initiatives in this regard is the national school feeding scheme which reaches nearly 5 million children annually⁽²⁸⁾. Primary schools which fulfil certain criteria related to poverty are provided with school meals by the Department of Education.

The above strategies, which form part of the INP, require certain levels of nutrition knowledge and expertise to implement at all levels of care. This means that the Nutrition Directorate of the DOH is faced with the challenge of ensuring that the PHC workforce is up to date and adequately trained to meet the nutritional health needs of the population. Furthermore, there should be sufficient staff to allow time for providing preventive services to those at risk of ill health and nutrition-related diseases.

This has broader implications in terms of training of health professionals since there are many questions that go unanswered, including the level to which the current workforce has been trained to implement the INP. Hence one aspect that needs to be researched is whether the PHC workforce has adequate nutrition knowledge to implement the INP.

What is the current public health nutrition workforce?

Nurses

In South Africa, PHC is dependent on registered nurses. Most basic nutrition-related health care is undertaken by

them at facility and community levels⁽³²⁾. They are frequently the only health professionals at district level who are responsible for growth monitoring and support, micronutrient malnutrition control, promotion and support of breast-feeding, and integrated management of childhood nutrition illnesses such as vitamin A deficiency or acute malnutrition. Furthermore, they are also expected to provide health-care advice on nutrition to the elderly and to patients with chronic conditions such as hypertension and obesity. In 2004 there were 184 459 nurses on the register, i.e. one nurse per 4000 persons⁽³²⁾.

According to Subedar⁽³²⁾, 34 264 professional nurses were trained between 1996 and 2004. However, the growth in professional nurses on the register of the Nursing Council in that period was only 10 707. Consequently 68.5% of nurses were lost from the system, many taking up positions outside South Africa or moving into the private health sector or not actively working as professional nurses. Between 1996 and 2004 the total number of nurses in South Africa increased by 6.9%. However, during the same period, the South African population increased from 40.5 million to 46.4 million; an increase of 14%. Hence, the PHC system – which is totally dependent on the professional nurse – has become unsustainable⁽³²⁾.

Concerns regarding the shortage of nurses have also been voiced by Chabikuli *et al.*⁽³³⁾, who pointed out that many nurses have been lost to HIV and AIDS. Up to 20% of nurses in the young age group were estimated to be infected with the HIV virus in 2002. Chabikuli *et al.* also raised the emigration issue, pointing out that nurse migration reflects deeper problems besieging the public health system. These include an increased workload, poor salaries, lack of recognition and an unfriendly working environment. In 2000 there were 120.3 professional nurses per 100 000 population. This decreased to 107.1 per 100 000 by 2003⁽³³⁾. Furthermore, it is projected that by 2009 there will be a gap of 3044 nurses serving the population. Hence basic PHC in terms of nutritional support appears to be endangered.

Dietitians and nutritionists

Until recently training of 'nutrition professionals' in South Africa comprised dietetics training, and none of the academic institutions offered a broader 'nutritionist' qualification. Since the 1940s, dietetics training was offered at traditionally 'white' universities and students of colour were rarely admitted before 1994 in line with the apartheid government's policies. The University of Natal (now University of KwaZulu-Natal) and the University of Cape Town were the only institutions admitting students of colour until the 1980s, when the Medical University of South Africa (MEDUNSA) (now University of Limpopo) introduced a dietetics diploma which was later upgraded to a 4-year integrated degree programme. This in effect became the first university where a large number of black students could be trained in dietetics. A few years later the

University of the North (now University of Limpopo) and the University of the Western Cape also introduced a 4-year dietetics degree. These three universities were all (and are still today) regarded historically as being black training institutions and currently still train the majority of black dietitians in South Africa. The majority of the traditionally 'white' institutions still had less than 10% of black students enrolled in a dietetics programme in 2006. One of the main reasons provided for this is the fact that few black students meet the exacting entrance requirements, which include a high mathematics and science matric pass. The previous government was largely responsible for this situation because they failed to provide equity in facilities and teacher training to schools serving black children. This has resulted in a shortage of skilled teachers trained in science and maths teaching and has long-term effects.

From 1994 the newly appointed government and the DOH realized the lack of capacity in nutrition and, in seeking to redress past inequalities, appointed many non-dietitians into nutrition managerial posts and even into posts previously designated for dietitians. These professionals were termed 'nutritionists' and comprised a mix of nurses, social workers and some having a non-dietetics nutrition qualification.

By the late 1990s the DOH had become aware of the fact that not all 'nutrition' professionals were appropriately trained to work in dietetic posts and that they were in fact contravening the Act regulating the profession of dietetics since the majority of these 'nutrition' professionals were not qualified to register with the Health Professions Council of South Africa (HPCSA). Running with these concerns, the Nutrition Society of South Africa started lobbying for a register of nutritionists to be enrolled by the HPCSA. This move was jointly supported by the Nutrition Directorate of the DOH. The general feeling was that nutritionists would bring additional skills and competencies to the health care arena, particularly with regard to prevention of nutritional diseases. Furthermore, dietitians are mainly white, unable to speak local African languages and the majority of them go into therapeutic nutrition. In 2007, 1188 dietitians were in facility-based therapeutic practice out of a total of 1624 registered (Association for Dietetics in South Africa, personal communication, 2007).

In the 1990s a working group was established to develop the scope of practice and the competencies required by a nutritionist. At the same time it was also advocated (in line with mid-level workers) to develop a separate register for nutrition support staff⁽³⁴⁾.

In 2005, 1659 dietitians and 932 student dietitians were registered with the HPCSA⁽³⁵⁾. Less than 600 were working in the public service in community nutrition (education and prevention). Currently, annual national production from academic institutions lies at above 150 and the Human Resource Plan for South Africa proposes

that the category for dietitians and nutritionists should be increased to more than 250 per annum by 2010. The profession is regulated by Act No. 56 of 1974 and includes the actions pertaining to the profession of dietetics listed in Table 6.

The Schedule of Registration as a nutritionist with the HPCSA has only recently been promulgated (2006)⁽³⁴⁾ and states:

A nutritionist is regarded as a person responsible for the promotion of nutritional health and well-being and prevention of nutrition related disorders of groups, communities or populations via sustainable and equitable improvements in the food and nutrition system. Nutritionists will not be involved in illness management i.e. therapeutic interventions in individual clients/patients/ or communities.

Actions pertaining to the profession of nutritionist are shown in Table 7. To date, the register for nutritionists has not been activated and it is believed that this will take place in 2008. It is hoped that this will increase the public health nutrition workforce considerably. For training of nutritionists, a 4-year bachelor's degree has already been implemented at two universities, University of Venda and University of KwaZulu-Natal. Both of these programmes have an agriculture and management component in addition to the nutrition core subjects, and focus on prevention and the development of nutrition interventions at community level.

Human resources for health – a strategic plan

It has been shown that many developing countries, including South Africa, do not plan, produce and manage workforce development adequately. With regard to planning, for example, these countries have not taken adequate account of the increase in the number of people over the age of 65 years, which has increased the demand for health services. With regard to production, it needs to be realized that not only is the workforce inadequate in number, but also the emphasis of the curriculum and the teaching methods mirror the training in developed countries. This includes the overemphasis on training specialists rather than auxiliaries, community health nurses and community health workers. Finally, poor management of health services has resulted in geographic and skills imbalances of health workers, such as large urban *v.* rural and private *v.* public health differences⁽³⁶⁾.

The national Human Resources for Health Plan⁽³⁷⁾ was developed by the DOH in 2005–6 in response to the issues mentioned above, and following on from the HSSF 2004–2009 which identified human resource development as one of its main priorities. The National Health Act No. 61 of 2003 guides the health sector by providing a framework for dealing with human resources. This

Table 6 The practice of dietetics as defined by the Health Professions Council of South Africa (Act No. 56 of 1974)

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1. The application of knowledge and skills by:
 - 1.1 The establishing and applying of guidelines for the maintenance of healthy nutritional practices for individuals;
 - 1.2 The applying of dietary principles as part of the treatment of an individual, relative to a specific disease and following prescription by a medical doctor;
 - 1.3 The establishing and applying of guidelines for adequate food and nutrition in the community and in institutions for healthy and ill persons, participation in research on aspects of dietetics, participation in formal and informal education in the field of dietetics.
 2. The promotion of community nutrition by:
 - 2.1 The accurate interpretation of the science of normal and therapeutic nutrition;
 - 2.2 The professional communication of nutrition-based knowledge according to need to individuals and groups within the community, nutritional behaviour in order to motivate them to change or maintain nutritional behaviour in order to improve quality of life.
 3. Contributing to therapeutic nutrition by:
 - 3.1 The compilation and application of scientifically justifiable dietary measures as part of a treatment of a patient or client following referral by, or consultation with, a medical doctor.
 4. The promotion of food service administration by:
 - 4.1 The planning, development, control, implementation and evaluation of and guidance in respect of suitable food service systems for the provision of balanced nutrition to groups in the community and in institutions for healthy and/or ill persons.
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Table 7 Actions pertaining to the profession of nutritionists as defined by the Health Professions Council of South Africa⁽³⁴⁾

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1. The application of knowledge and skills by:
 - Generation of new knowledge regarding the relationship between nutrition and health of humans through research;
 - Establishing and applying of guidelines of the maintenance of healthy nutritional practices for individuals and groups.
 2. The promotion of nutrition by:
 - The accurate interpretation of the science of nutrition;
 - The professional communication of scientifically based nutrition knowledge, according to need, to individuals and groups within the community in order to motivate them to maintain or change nutritional behaviour in order to improve quality nutrition related diseases;
 - Application and communication of scientific knowledge on nutrition interventions and nutrition programmes in order to manage such interventions and programmes, based on needs assessment and analysis;
 - Evaluation and monitoring of the impact of nutrition interventions and programmes;
 - Formulation of nutrition policy and the monitoring of the implementation of nutrition policies;
 - Development of nutrition and education material;
 - Nutrition communication and promotion.
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includes the following four important strategies which also have an impact on nutritional health professionals.

1. Policy on internship: This policy ensures the supervised training of certain designated, newly qualified health professionals before they can register for independent practice. This policy is aimed at ensuring an equitable distribution of newly qualified health professionals in

under-served communities, particularly those in remote rural areas. The internship policy became compulsory for dietitians in 2002; since then they have had to spend one year after completion of the bachelor's degree working at a health facility designated by the DOH. Once the register for nutritionists has been activated it is anticipated that they will also be required to do the internship. Studies on internship have shown that these professionals are exposed to heavy workloads, sometimes without the necessary supervision⁽³⁷⁾; however, there is no doubt that this system has played a major role in bringing health professionals into remote communities and to disadvantaged people. Furthermore, interns are exposed to environments and health conditions that they may rarely have encountered in private practice. In 2005 there were 103 dietitians employed in compulsory community service.

2. Continuing professional development: In 1999 the Forum of Statutory Health Councils established a Continuing Professional Development (CPD) programme⁽³⁶⁾. This introduced the principle that all registered health professionals must update their knowledge and skills on an ongoing basis by means of a range of professional development activities such as conference attendance, publications, self-study and group study. Initially these activities were recorded and maintained at a database at the HPCSA; however in 2006 a new system was introduced whereby health professionals maintain records of their own CPD status. These may be subjected to audit by the HPCSA at any time. Each registered dietitian is required to accrue 30 CEU (continuing education units) per year and should be able to provide proof of this. Whether this system will in fact ensure that health professionals remain updated regarding their knowledge has not yet been evaluated.
3. Mid-level health workers: The introduction of a new cadre of health professionals has been a topic of considerable debate since the early 1990s⁽³⁷⁾. The first profession to introduce a mid-level worker has been pharmacy, which introduced pharmacy assistants in an attempt to alleviate the shortage of professionals, particularly in under-served communities. The introduction of mid-level workers for physiotherapy, occupational therapy and nutrition/dietetics is currently under discussion.
4. Policies to attract health professionals to under-served/rural communities: These include financial incentives such as a rural allowance; appointment of foreign health professionals of scarce skills; and payment of overtime to health professionals in the public service⁽³⁷⁾.

Conclusions and recommendations

The sociodemographic profile of South Africa clearly illustrates that the training of public health nutrition

professionals will remain a priority for the DOH for many years to come, owing to the triple burden of diseases.

The New Partnership for Africa's Development has developed a human resources plan for Africa which includes the following recommendations: (i) prioritize human resources for health; (ii) allocate more funds to workforce development; (iii) provide training opportunities and career pathways, and adequate remuneration; and (iv) cultivate better management and retention strategies⁽³⁶⁾.

In this regard it is reassuring to note that the DOH in South Africa has developed a national Human Resource Plan which focuses on the creation of sufficient capacity in public health nutrition (among others) to meet the nutritional health requirements of the population, particularly those in rural and under-served communities. Currently, the recognition of the importance of public health nutrition is stronger than it has ever been.

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References

1. Padarath A, Ntuli A & Berthiaume L (2005) Human resources. In *South African Health Review 2003/2004*, pp. 299–315. Durban: Health Systems Trust.
2. Sanders D & Lloyd B (2006) Human resources. In *South African Health Review 2005*, pp. 76–87. Durban: Health Systems Trust.
3. Statistics South Africa (1998) *The People of South Africa, Population Census 1996: Census in Brief*. Pretoria: Statistics South Africa.
4. Statistics South Africa (2002) *Stats in Brief 2002*. Pretoria: Statistics South Africa.
5. Statistics South Africa (2003) *Census 2001: Census in Brief Report* no. 03-02-03 (2001). Pretoria: Statistics South Africa.
6. Statistics South Africa (2004) *Census 2001: Community Profiles*. Pretoria: Statistics South Africa.
7. Bradshaw D, Nannan N, Laubscher R, Groenewald P, Joubert J, Nojilana B, Norman R, Pieterse D & Schneider M (2004) *South African National Burden of Disease Study, 2000: Estimates of Provincial Mortality*. Tygerberg: MRC.
8. Actuarial Society of South Africa AIDS Sub-committee (2002) ASSA2002 AIDS and demographic model. <http://www.assa.org.za/> (accessed July 2005).
9. Solarsh G & Goga A (2004) Child health. In *South African Health Review 2003/2004*, pp. 101–126. Durban: Health Systems Trust.
10. South African Vitamin A Consultative Group (1995) *Children Aged 6–71 Months in South Africa, 1994: Their Anthropometric, Vitamin A, Iron and Immunization Coverage Status*. Stellenbosch: University of Stellenbosch.
11. Labadarios D, Steyn NP, Maunder E, MacIntire U, Swart R, Gericke G, Huskisson J, Dannhauser A, Vorster HH & Nesamvuni EA (2000) *The National Food Consumption Survey (NFCs): Children aged 1–9 years, South Africa, 1999*. Pretoria: Department of Health.

12. Immelman R, Towindo T & Kalk WJ (2000) *Report of the South African Institute for Medical Research (SAIMR) on the Iodine Deficiency Disorder Survey of Primary School Learners for the Department of Health, South Africa*. Johannesburg: SAIMR.
13. Steyn NP, Labadarios D, Maunder E, Nel J, Lombard C & Directors of the NFCS (2005) Secondary anthropometric data analysis of the National Food Consumption Survey in South Africa: the double burden. *Nutrition* **21**, 4–13.
14. Steyn NP (2006) Nutrition and chronic diseases of lifestyle in South Africa. In *Chronic Diseases of Lifestyle in South Africa: 1995–2005*, pp. 33–47 [K Steyn, J Fourie and N Temple, editors]. Cape Town: MRC; available at <http://www.mrc.ac.za/chronic/cdl1995-2005.pdf>
15. United Nations Development Programme (date?) Millennium Development Goals – MDGs. <http://www.undp.org/mdg/> (accessed March 2007).
16. Department of Health (1998) *Integrated Nutrition Programme for South Africa. Summary of Broad Guidelines for Implementation*. Pretoria: Department of Health.
17. Reddy SP, Panday S, Swart D *et al.* (2003) *The 1st South African National Youth Risk Behaviour Survey 2002*. Cape Town: MRC.
18. Temple NJ, Steyn NP, Myburg NG & Nel JH (2006) An evaluation of food consumed in schools in Cape Town, South Africa. *Nutrition* **22**, 252–258.
19. Department of Health, South African Medical Research Council & Measure DHS+ (2002) South Africa Demographic and Health Survey 1998. Full report. <http://www.doh.gov.za/facts/sadhs-f.html> (accessed July 2005).
20. Mollentze WF & Levitt NS (2006) Diabetes mellitus and impaired glucose tolerance in South Africa. In *Chronic Diseases of Lifestyle in South Africa: 1995–2005*, pp. 109–121 [K Steyn, J Fourie and N Temple, editors]. Cape Town: MRC; available at <http://www.mrc.ac.za/chronic/cdl1995-2005.pdf>
21. Steyn K (2006) Overview and conclusions: a perspective on dealing with chronic diseases of lifestyle in South Africa. In *Chronic Diseases of Lifestyle in South Africa: 1995–2005*, pp. 249–266 [K Steyn, J Fourie and N Temple, editors]. Cape Town: MRC; available at <http://www.mrc.ac.za/chronic/cdl1995-2005.pdf>
22. Johnson S, Schierhout G, Steinberg M, Russell B, Hall K & Morgan J (2003) AIDS in the household. In *South African Health Review 2002*, pp. 203–216. Durban: Health Systems Trust.
23. Department of Health (no date) Health Sector Strategic Framework, 1999–2004. <http://doh.gov.za/docs/index.html> (accessed March 2007).
24. Andrews G & Pillay Y (2005) Strategic priorities of the national health system (2004–2009). In *South African Health Review 2005*, pp. 2–15 [P Ijumba and P Barron, editors]. Durban: Health Systems Trust.
25. Hall W, Ngomane-Ford T & Barron P (2005) The Health Act and the district health system. In *South African Health Review 2005*, pp. 44–57 [P Ijumba and P Barron, editors]. Durban: Health Systems Trust.
26. Republic of South Africa (2004) National Health Act No. 61 of 2003. Government Gazette. <http://www.info.gov.za/gazette/acts/2003/a61-03.pdf> (accessed January 2005).
27. UNICEF (1995) *The State of the World's Children 1994*. Oxford: Oxford University Press.
28. Nutrition Directorate, Nutrition and Provincial Nutrition Units (2001) *Integrated Nutrition Programme Strategic Plan 2001/02 to 2006/7*. Pretoria: Department of Health.
29. Talip W, Levitt NS & Steyn NP (2006) Lifestyle modification education in chronic diseases of lifestyle: health facility audit of equipment and health promotion materials. *S Afr J Clin Nutr* **19**, Suppl., S25.
30. Love P, Maunder E, Green M, Ross F, Smale-Lovely J & Charlton K (2001) South African food-based dietary guidelines: testing of the preliminary guidelines among women in KwaZulu-Natal and the Western Cape. *S Afr J Clin Nutr* **14**, 9–19.
31. Government Notice, Department of Health (2003) *Foodstuffs, Cosmetics and Disinfectants Act No. R2003 (Act No. 54 of 1972). Regulations Relating to the Fortification of Certain Foodstuffs*. Pretoria: Department of Health.
32. Subedar H (2005) The nursing profession. In *South African Health Review 2005*, pp. 88–101 [P Ijumba and P Barron, editors]. Durban: Health Systems Trust.
33. Chabikuli N, Gilson L, Blaauw D & Schneider H (2005) Human resource policies. In *South African Health Review 2005*, pp. 104–115 [P Ijumba and P Barron, editors]. Durban: Health Systems Trust.
34. Health Professions Council of South Africa (2006) *Regulations Relating to the Registration of Nutritionists. DTB 20 Nov 2006*. Pretoria: HPCSA.
35. Health Professions Council of South Africa (2006) *Annual Report 2005/6. Professional Board Update*, pp. 45–47. Pretoria: HPCSA.
36. Sanders D & Lloyd B (2005) Human resources: international context. In *South African Health Review 2005*, pp. 77–87 [P Ijumba and P Barron, editors]. Durban: Health Systems Trust.
37. Department of Health (2007) *Human Resources for Health: A Strategic Plan*. Pretoria: DOH.