CHAPTER 1

GENERAL INTRODUCTION

Malnutrition and its treatment has invariably been seen as a costly drain on the national economy and more specifically on the health budget. In economic terms, the prevention of malnutrition should be considered as a means of saving funds for national development. In the past, failure to appreciate this important difference has often resulted in grossly inadequate support, both financial and infrastructural, in addressing this basic human right, namely to be well nourished.

The economic losses that are attributed to malnutrition have been calculated by the World Bank to range from 6-12% of the GNP of developing countries[1]. In this regard, if a figure of a 6% loss would be applicable to South Africa, the costs of under nutrition alone could amount to at least four billion rand and may be higher, if the cost of the chronically and acutely ill patients who are undernourished is taken into account.

Protein Energy Malnutrition (PEM) in South Africa is known to prevail primarily in children of underprivileged rural and peri-urban communities; in 1989, chronic PEM was reported to range from 10-67% among African children younger than 14 years of age[2]. Poverty, landlessness, food insecurity, high birth rate, lack of political commitment, migrant labor, lack of breastfeeding and poor maternal nutrition education, absence of a national nutrition policy as well as lack of trained personnel have contributed to the problem[3,4].

The prevention of malnutrition and its adverse effects on the quality of life of the individual and the community, together with the implications for national productivity and socioeconomic development amount, therefore, to the strongest argument for the government to afford the highest priority to this problem. Certainly, the sustainable solution to the problem is to improve the living and working conditions as well as the education standards of the population; this will eventually occur as part of the process of democratization that is taking place in the country. However, in the short term, nutrition intervention programmes should be seen as a national priority until such time that the infrastructure to prevent PEM has been realised.

In terms of micronutrient deficiencies, a new concept is emerging. It is becoming increasingly clear that micronutrients may have other functions than the ones currently accepted, such as in hormonal or gene regulation, and that the requirements for the maintenance of optimal health may be different from those for the prevention of conventional deficiency states. From a disease prevention point of view, significant health benefits have been shown to accrue from micronutrient supplementation. The Linxian studies in China[5] are the first to show that in an adult population with marginal micronutrient status*****, micronutrient supplements significantly decreased total mortality as well as cancer incidence and mortality[6].

***** A state of gradual micronutrient depletion in which, in the absence of any other disease, there is evidence of personal lack of well-being associated with impairment of certain biochemical reactions; the reactions impaired are those that depend on the presence of sufficient amounts of micronutrients.

Even in apparently healthy adult populations, two large prospective studies, namely the Nurses' Health Study and the Health Professionals' Follow-up Study, have provided additional evidence that the use of micronutrient supplements, especially vitamin E, is associated with a significantly reduced risk of coronary heart disease[7,8]. Similarly in apparently healthy adult populations, the major benefits derived from folic acid supplementation in the prevention of neural tube defects in high risk pregnancies are already well known[9].

In children, three micronutrient deficiencies, namely vitamin A, iodine and iron, are considered to be a major public health problem in developing countries and are currently receiving high priority worldwide. Communities particularly affected are those in situations where poverty, unemployment, civil unrest, war and exploitation remain endemic. Collectively, these micronutrient deficiencies contribute to growth retardation, brain damage, diminished cognitive function and diminished working capacity in children and adults as well as increased susceptibility and severity of infections, and mortality[10].

In Africa, vitamin A deficiency is reported[10] to affect 1,3 million children under five years of age, iodine deficiency affects 39 million people, whereas iron deficiency anaemia affects 59,4 million women 15-49 years of age. The causes of these deficiencies are nutrient and region dependent. Iodine deficiency is largely an environmental problem and is common in regions with iodine deficient soils and/or water supplies. Iron deficiency is largely due to low absorption of iron from foods and parasitic infestations or, in infants, to incorrect breastfeeding practices, whereas vitamin A deficiency is primarily due to inadequate dietary intake and/or impaired absorption.

In South Africa, clinical iodine deficiency [estimated from sub-national data and Total Goitre Rate (TGR) prevalence in border regions of neighboring countries] is not commonly seen[11]; deficiency, both on biochemical and clinical grounds, may, however, be present in some specific areas (Western Cape, Northern Cape, KwaZulu/Natal, Northern Province and Eastern Transvaal) in the country[12]. The prevalence of xerophthalmia is reported to be low countrywide (<0,06%)[13,14] and mostly occurring only in areas of the Northern Province, where vitamin A supplementation, among other measures, has already been implemented to reduce clinical vitamin A deficiency[15]. The prevalence of marginal vitamin A status, however, is largely undefined[16]. A considerable number of fragmented small scale studies on iron status have consistently identified pregnant women, infants and primary school children as being the most susceptible populations likely to have iron deficiency of varying severity[17,18]. Significantly though, previous and recent studies also indicate a high prevalence of iron overload, especially in men[19,20].

In so far as the status of vitamin B complex vitamins in the country is concerned, available data indicate that the dietary intake of vitamin B6, folic acid, thiamin, niacin and riboflavin is commonly low in adults and children. Because the latter two have been held responsible for approximately 100 000 hospital admissions in the country[21], legislation for the fortification of maize meal has been introduced. However, the implementation and impact of this practice is largely unknown. Other recent biochemical studies[22] in

populations in transition indicate that deficiencies of vitamin B6, folate, riboflavin and thiamin are common.

At the end of the 1970's, fewer than 10% of the world's children were being immunised[23]. Thus, the nutritional status of the majority of children was being further compromised by infectious diseases which are known to adversely impact on growth and development by decreasing appetite, increasing energy requirements, inhibiting nutrient absorption and increasing nutrient losses due to diarrhoea and vomiting. Many of these diseases are preventable. Apart from its impact on infectious diseases, the implementation of a comprehensive immunisation programme would also have a positive impact on the growth and development of children.

The available evidence regarding the significant and adverse effects of malnutrition as well as micronutrient malnutrition on the health and development of children was highlighted at the World Summit for Children, held in New York in December 1990, in which political leaders from around the world endorsed the "World Declaration on Children"[24], subsequently also signed by President Mandela and Deputy President De Klerk. The Declaration specifically targets the year 2000 for the virtual elimination of vitamin A and iodine deficiency, and a one-third reduction in the number of women affected with iron deficiency anaemia; in addition, the goal is to achieve 90% immunisation coverage among under one year old children, the eradication of poliomyelitis, the elimination of neonatal tetanus, a 90% reduction in measles cases and a 95% reduction in measles deaths. Furthermore, the rights, needs as well as the growth and development of children are clearly identified priorities in the government's Reconstruction and Development Programme, which emphasises that the "needs of children must be paramount throughout all programmes aimed at meeting basic human needs and socioeconomic upliftment"[25].

The true extent of the prevalence of malnutrition, including micronutrient malnutrition, on a national scale in South Africa is unknown, since there is no national nutritional surveillance programme and no national survey has ever been done in children younger than six years of age. A number of studies have, however, indicated that malnutrition is prevalent in many areas. The lack of data has, to some extent, contributed to the failure of the health services to address the problems in a meaningful manner[26].

Given the paucity of national data on growth and micronutrient status of children younger than 6 years of age, the South African Vitamin A Consultative Group (SAVACG) was formed in 1993, initially with the aim of determining growth and micronutrient status of South African children with a view to assisting in decision-making with respect to the development of comprehensive, preventive and intervention programmes. Following discussions with the Department of Health and UNICEF, the mandate of the Group was extended to include the assessment of immunisation coverage and visible goitre, respectively.

This report provides the results of the first ever national survey of children under the age of six years in respect of vitamin A, (iodine), iron, anthropometric and immunisation

coverage status. The report also makes certain recommendations on these issues which will hopefully be considered for implementation.

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