

EXECUTIVE SUMMARY

Given the paucity of national data on the anthropometric 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 assessing the anthropometric, vitamin A and iron 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 respectively the assessment of immunisation coverage and of visible goitre. The survey was sponsored by the Department of Health with support from UNICEF.

OBJECTIVES OF THE STUDY

1.1 Main Objectives:

To establish, in children aged 6-71 months in South Africa, by socioeconomic status, by geographic and age distribution as well as by degree of urbanisation:

- 1.1.1 The vitamin A status;
- 1.1.2 The iron status;
- 1.1.3 The anthropometric status; and
- 1.1.4 The immunisation coverage status.

1.2 Subsidiary Objectives:

To establish in the same population:

- 1.2.1 The prevalence of visible goitre; and
- 1.2.2 The prevalence of breastfeeding.

SURVEY METHODOLOGY

- 2.1 The study population consisted of all children aged 6-71 months in South Africa. A national probability sample was drawn with disproportionate stratification by province. Provincial weighting factors were, therefore, used in the analysis of the data. The survey was conducted between July and October 1994.
- 2.2 A total of 360 clusters were studied of which 358 were available for analysis. Of these, 163 were rural and 195 were urban. A total of 18 219 households (19 003 families) were selected for the study. The age distribution of the children sampled (n = 11 430) was fairly consistent across all provinces and across age groups. Approximately half of the sample of children consisted of females. A total of 4 788 blood samples were drawn for the determination of serum vitamin A and serum ferritin concentrations as well as a full blood count; a similar number of samples was drawn from rural and urban areas.

MAIN FINDINGS

3.1 Findings on the Main Objectives:

3.1.1 Vitamin A status

- 3.1.1.1 One in three children had a marginal vitamin A status (serum vitamin A concentration below 20 $\mu\text{g/dL}$). Children living in the rural areas and whose mothers were poorly educated were the most disadvantaged. According to international criteria, the national prevalence (33%) of marginal vitamin A status found in this study identifies the country as having a serious public health problem of vitamin A deficiency. Also of importance is the finding that a small percentage (1%) of children had serum vitamin A concentrations higher than 50 $\mu\text{g/dL}$.

3.1.2 Iron status

- 3.1.2.1 One in five children in the country was anaemic, one in fifteen moderately anaemic and one in five hundred severely anaemic. In terms of iron status, one in ten children was iron depleted or deficient, one in twenty was severely iron depleted or deficient and one in twenty had iron deficiency anaemia. Anaemia and poor iron status were more prevalent in urban areas. Children in the 6-23 month age group were the most severely affected.
- 3.1.2.2 As a group, children with marginal vitamin A status were at a significantly higher risk of also being anaemic and of having iron deficiency anaemia; children with vitamin A deficiency (serum vitamin A concentration $<10 \mu\text{g/dL}$) were at even higher risk of being anaemic.
- 3.1.2.3 Three out of twenty children would appear to have had an underlying infection or inflammation, or alternatively might have had an underlying folate or vitamin B12 deficiency.

3.1.3 Anthropometric status

- 3.1.3.1 Almost one in four children was stunted and one in ten underweight. This translates into approximately 660 000 preschool children being identifiably malnourished and 1 520 000 being stunted because of long-term malnutrition.
- 3.1.3.2 According to international criteria, stunting is a major problem in the country, especially in some provinces, and, in general, it was more prevalent in rural than in urban communities, in children living in traditional or informal type of housing and in those whose mothers were less well educated.

3.1.4 Immunisation coverage

- 3.1.4.1 Nine out of ten one year old children in the country had an immunisation card and six out of ten had a visible BCG scar; seven out of ten were considered to be fully immunised, although only six out of ten children were fully immunised by their first birthday. Children in the rural areas were less likely to be fully immunised, to possess an immunisation card or to have a visible BCG scar. Children living in traditional houses were more likely not to be immunised at all, and those of less educated mothers achieved a lower coverage.
- 3.1.4.2 The average drop-out rate between BCG and the first measles dose was 11%.
- 3.1.4.3 A trend for increased immunisation coverage over the past five years was evident in every dose and in the percentage of fully immunised children; the measles dose showed consistently higher coverage in younger age groups, whereas a slight reduction in coverage of DTP3 and OPV3 was noted in the 3 year old age group.
- 3.1.4.4 Only a small percentage of OPV and DTP doses (2-3%) were given within too short an interval (thus making their effectiveness doubtful), as compared with the much higher percentage (29-35%) of doses that were given with too long an interval between the doses (even though that does not impede the effectiveness of the vaccine).
- 3.1.4.5 The later doses (i.e. those not given at birth) were mostly given in fixed or mobile clinics and in hospitals; private immunisers played a minor role.

3.2 Findings On The Subsidiary Objectives

3.2.1 Iodine status

- 3.2.1.1 One out of one hundred children was seen to have visible goitre. These findings should, however, be interpreted with caution, since the assessment of visible goitre, on its own, is subjective and may underestimate the prevalence of iodine deficiency disorders.

3.2.2 Breastfeeding

- 3.2.2.1 Almost nine out of ten children three years of age had been breastfed for a varying duration. A greater proportion of rural children were breastfed (91%) compared with urban children (83%); in general, a greater percentage of rural children were also breastfed for longer periods.
- 3.2.2.2 Over the last five years, a tendency for younger children who were breastfed at all, to be breastfed for less than 3 months, was apparent; this trend was particularly prominent in urban communities.
- 3.2.2.3 Employment at the time of the survey did not appear to affect the prevalence of breastfeeding practices, but a higher percentage of children of well educated mothers were breastfed for less than 3 months.

There were interprovincial differences in the findings of the study; in general, however, the three provinces that were the most seriously disadvantaged were the Northern Cape, the Eastern Cape and the Northern Province.

MAIN RECOMMENDATIONS

4.1 Recommendations On The Main Objectives

4.1.1 Vitamin A status

- 4.1.1.1 A national high dose vitamin A capsule distribution programme should be instituted, starting with the provinces at highest risk, for a period of three years for all children 6-71 months of age. No child should receive more than two doses per annum, unless so prescribed by a paediatrician.
- 4.1.1.2 The immunisation services (see text of the report) and the "Well-Baby-Clinic" programme should be used for the implementation of the distribution of the vitamin A capsules every six months. Alternatively, the vitamin A capsules should be administered through primary health care clinics (fixed or mobile) or by community health workers during predetermined one-day campaigns. The dose should be recorded on the Road to Health card.
- 4.1.1.3 High dose vitamin A supplements should also be administered to all children who present to health centres with malnutrition, measles or diarrhoea. The administration of the supplements should also be recorded on the Road to Health card.
- 4.1.1.4 Lactating mothers should receive a single high dose vitamin A supplement within the first month postpartum during one of the postnatal visits, for an initial period of three years. Continuation of this practice will depend on the assessment of vitamin A status after that period.

- 4.1.1.5 The feasibility of fortifying food consumed in adequate amounts by children at risk should be investigated by the Department of Health with a view to implementation.

4.1.2 Iron status

- 4.1.2.1 An iron sulphate syrup supplement distribution programme should be instituted for a period of three years primarily for all children in the 6-23 month age group. For children at risk and aged 24-71 months, a screening system, using haemoglobin concentration, should be introduced and iron supplements administered as necessary.
- 4.1.2.2 Iron supplements should also be dispensed to children who have been ill, but only during the period of convalescence.
- 4.1.2.3 The feasibility of fortifying baby and toddler foods with iron should be investigated by the Department of Health with a view to implementation.

4.1.3 Anthropometric status

- 4.1.3.1 The preschool child, especially the very young (< 2 years of age), should be the prime target group for nutritional intervention, and the mother for nutrition education. At present, both these aims should be concurrently achieved within the existing health facility-based and community-based nutrition programmes.
- 4.1.3.2 All children with anthropometric parameters that fall two standard deviations below the reference median (-2SDs) should be targeted.
- 4.1.3.3 The supplementary foods that are currently provided, or may be provided in the future, should not simply concentrate on energy content but also on dietary quality and micronutrient composition.
- 4.1.3.4 Due consideration should be given to creating creche facilities within the community and at the work place, especially in provinces with a high prevalence of stunting and in disadvantaged communities within provinces which have a high prevalence. Similarly, health facility-based rehabilitation centres should be established for the intensive treatment, supervision and follow-up of severely malnourished children. Income generating activities could be linked to these structures.

4.1.4 Immunisation coverage

- 4.1.4.1 A surveillance-driven programme should be developed using disease surveillance data to guide management decisions; such a system should allow for the rapid reporting and for the control of outbreaks with targeted immunisation responses.

- 4.1.4.2 A functional referral system should be established for immunisations that cannot be given immediately in non-immunisation health facilities; opportunities for immunisations should also be created by offering evening or weekend clinics.
- 4.1.4.3 "Mopping-up" campaigns should be introduced to eliminate pockets of low coverage. Provincial managers should be encouraged to eliminate low coverage with limited "mopping-up" or "raking" strategies in these areas.
- 4.1.4.4 A lifetime health record for each person should be established by devising a "self-retained health record" which will contain information on birth history, immunisation, growth monitoring, serious diseases, such as tuberculosis, allergies, and any chronic treatment.

4.2 Recommendations On the Subsidiary Objectives

4.2.1 Iodine status

- 4.2.1.1 Within the limitations of the methodology employed and the age of the population studied, iodine deficiency may occur in selected parts of the country. The need for the better definition of iodine status at the national level in school-going children should be seen within the framework of other national health priorities.

4.2.2 Breastfeeding

- 4.2.2.1 The prevalence of exclusive breastfeeding for 4-6 months in the country is largely unknown and should be defined.
- 4.2.2.2 Within the framework of health care services, and primary health care in particular, exclusive breastfeeding for 4 months, where possible, should be promoted and implemented according to international goals, in order to maintain the high prevalence of breastfeeding recorded in most provinces in the study.
- 4.2.2.3 The factors responsible for the documented tendency for younger children to be breastfed for periods shorter than three months, especially in urban areas, should be identified.
- 4.2.2.4 A "warm chain" for breastfeeding should be established which should include the alleviation of the everyday constraints with which a lactating mother may be faced both at home and at the work place.
- 4.2.2.5 In South Africa, these goals should be achieved in close partnership with all relevant role players and with due consideration to and respect for the choice of an informed mother regarding the feeding of her child.

4.3 Encompassing Recommendations

- These recommendations are equally applicable to the preceding sections of the executive summary and are, therefore, for ease of presentation summarised in this section as follows:

4.3.1 The prevalence of vitamin A deficiency, iron deficiency and anthropometric status of children under the age of five years as well as breastfeeding practices should be incorporated in the national Health Information System as an indicator of the success of national, regional and local health programmes.

4.3.2 Effective management is fundamentally crucial to the success of all of the proposed recommendations, and it should incorporate training on all the aspects on which recommendations are made as well as on the monitoring and evaluation of the proposed intervention programmes.

4.3.3 At the end of the proposed three year period a repeat survey should be conducted to evaluate the impact of the proposed recommendations.

4.3.4 The Directorate of Nutrition should establish Consultative Groups, such as SAVACG, mandated to monitor the anthropometric and micronutrient status of children.

4.3.5 The decision to implement the interventions recommended should be accompanied by a multifaceted evaluation programme and strategies to:

- Increase consumer awareness of adequate micronutrient intake.
- Increase awareness of the importance of immunisation.
- Increase awareness of the importance of breastfeeding.
- Improve health worker training in respect of stunting, micronutrients, breastfeeding and immunisation.
- Evaluate, and adapt as necessary, the currently dispensed micronutrient supplements in health care facilities.
- Regulate or legislate for food fortification programmes.

4.3.6 The long-term improvement of the nutritional and micronutrient status of children should be addressed within the proposed framework of the Nutrition Committee regarding an integrated nutrition strategy for South Africa, which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment.

GENERAL RECOMMENDATIONS

In general, the process of making recommendations consisted of the following steps: Firstly, for each specific component of the study "action points" were established, i.e. results beyond which intervention was deemed necessary. Secondly, all possible interventions used worldwide were discussed. Thirdly, given the study results and data on health services, the interventions that seemed to be most efficacious and implementable in South Africa were selected.

SAVACG offers its assistance in the implementation of those proposed recommendations for which it has the relevant expertise and infrastructure.

- 5.1 The Department of Health should investigate the feasibility of establishing and maintaining a nationally valid sampling frame for children. The Department could achieve this goal in collaboration with research institutions and universities in the country.
- 5.2 Both the Department of Health and the Medical Research Council with or without the assistance of the private sector should develop appropriate mechanisms to initiate multi-institutional and multisectoral research allowing South Africa to better develop its own health research capacity through national cooperation.
- 5.3 The Department of Health at national, regional and local level, as well as the Medical Research Council and universities should develop strategies, with appropriate financial support, to respond to health research problems of major national, regional or local importance in relatively short periods of time.
- 5.4 The need for expert assistance to the three most disadvantaged (within the framework of this study) provinces should be assessed and, when assistance is required, strategies should be developed to make such expertise available.
- 5.5 SAVACG agreed and recommended unanimously that should the Department of Health continue with food supplementation of children, such supplementation should be given to young children, i.e. children up to the age of five years, or even only up to two years, rather than to children of schoolgoing age.
- 5.6 A more specific study should be conducted regarding access to television services by South Africa's children and their caretakers, and a strategy should be developed for the optimal use of television for health education and promotion in both rural and urban populations.

SUMMARY OF RECOMMENDATIONS

[These are numbered according to, and are presented in the sequence of the chapters in the main report]

CHAPTER 3: GENERAL RESULTS

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendations 3.1.1, 3.2.2.1 and 3.2.2.2.

3.1 Iodine status:

3.1.1 Within the methodological limitations discussed in this report, the results of this study seem to confirm previous fragmented data that iodine deficiency may occur in some parts of the country. The need for the better definition of iodine status at the national level in schoolgoing children should be seen within the framework of other national health priorities. Certainly, such a study would be essential for the formulation of an informed policy on any necessary intervention, such as the recently proposed legislation for universal salt iodisation. In view of the findings of the present study, it is recommended that iodine status of schoolgoing children as well as pregnant and lactating mothers in the Northern Cape is assessed using biochemical and clinical parameters.

3.2 Breastfeeding:

3.2.1 Short-term

3.2.1.1 Within the framework of health care services, and primary health care in particular, exclusive breastfeeding for 4-6 months should be promoted and implemented according to international goals, in order to maintain the high prevalence of breastfeeding recorded in most provinces in the study. Television would be an appropriate medium to employ for this purpose, since a substantial number of homes have a working television set.

3.2.2 Medium-term

3.2.2.1 The prevalence of exclusive breastfeeding for 4-6 months in the country is largely unknown and should be defined.

3.2.2.2 The factors responsible for the documented tendency for younger children to be breastfed for periods shorter than three months, especially in urban areas, should be identified. In this regard, and with the primary objectives of the study in mind, breastfeeding is known to substantially reduce the risk of vitamin A deficiency, a protective effect which extends to the third year of life. This is also of particular importance, in view of the current poorly documented claims of possible faltering of breastfeeding practices in the country.

- 3.2.2.3 Based on recommendations 3.2.2.1 and 3.2.2.2 above, a "warm chain" for breastfeeding should be established which includes appropriate training of health care personnel and alleviation of the everyday constraints with which a lactating mother may be faced both at home and at the work place.
- 3.2.2.4 In South Africa, these goals should be achieved in close partnership with all relevant role players and with due consideration to and respect for the choice of an informed mother regarding the feeding of her child.

3.2.3 Long-term

- 3.2.3.1 Breastfeeding practices including exclusive breastfeeding should form part of the national surveillance system in order to monitor progress and take corrective steps as appropriate.
- 3.2.3.2 The long-term achievement of these goals should be addressed within the proposed framework of the Nutrition Committee regarding an integrated nutrition strategy for South Africa which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment.

CHAPTER 4: ANTHROPOMETRIC STATUS

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendations 4.1.1, 4.1.3, 4.1.4, 4.2.3, 4.2.5, 4.2.6 and 4.2.7.

4.1 Short-term

- 4.1.1 Stunting should be addressed within the proposed framework of the Nutrition Committee regarding an integrated nutrition strategy for South Africa which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment. Essentially, the strategy includes i) health facility-based nutrition programmes, ii) community-based nutrition programmes, iii) nutrition promotion, communication and advocacy, iv) national nutrition surveillance for growth monitoring, v) legislation, policy and regulations to improve nutrition, and vi) human resource development. These aspects will not, therefore, be repeated or expanded upon in the rest of the report.
- 4.1.2 The findings of the present study clearly identify the preschool child, especially the very young (< 2 years of age), as a prime target group for nutritional intervention, and the mother for nutrition education. At present, both these aims should be concurrently achieved within the existing health facility-based and community-based nutrition programmes.
- 4.1.3 The supplementary foods that are currently, or will be, provided should not simply concentrate on energy content but also on dietary quality and micronutrient composition.
- 4.1.4 All children with anthropometric parameters that fall below -2SDs should be targeted.

4.2 Medium- and Long-term

- 4.2.1 In the longer-term, the provision of supplementary foods is seen as an interim measure. The need for continued supplementary feeding must be weighed against socioeconomic development. As the latter increases, the former should be phased out.
- 4.2.2 Due consideration should be given to creating creche facilities within the community and at the work place, especially in provinces with a high prevalence of stunting and in disadvantaged communities within provinces which have a high prevalence. Income generating activities could be linked to these structures.
- 4.2.3 Similarly, health facility-based rehabilitation centres should be established for the intensive treatment, supervision and follow-up of severely malnourished children. The mothers of malnourished children, apart from being educated, can also concurrently engage in income generating activities.

- 4.2.4 The financial aspects of recommendations 4.2.2 and 4.2.3 should be interpreted and viewed in the light of the current budget for and cost-effectiveness of the Primary School Nutrition Programme.
- 4.2.5 The Directorate of Nutrition should enable both universities and research organisations to conduct research on the monitoring and evaluation of any such schemes that are implemented. In this regard, particular attention should be given to the long-term benefits afforded to children by such schemes.
- 4.2.6 The Directorate of Nutrition should establish a Consultative Group specifically mandated to monitor growth as well as the prevention, identification and treatment of malnutrition.
- 4.2.7 An anthropometric assessment of preschool children should be repeated in three years with a view to assessing progress achieved.

CHAPTER 5: VITAMIN A STATUS

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendations 5.1.5, 5.1.8, 5.1.10, 5.1.11, 5.1.12, 5.1.13, 5.2.1, 5.2.2 and 5.2.3.

5.1 Short-term

- 5.1.1 A vitamin A capsule distribution programme should be instituted for three years for all children 6-71 months of age.
- 5.1.2 The dosage schedule should be 100 000 IU at six months, or as soon as possible thereafter, and 200 000 IU every six months for older children. This study does not allow for recommendations to be made regarding the administration of vitamin supplements to children older than 71 months of age. No child should receive more than two doses annually unless so prescribed by a paediatrician.
- 5.1.3 The "Well-Baby-Clinic" programme should be used for the implementation of the distribution of the vitamin A capsules. The dose should be recorded on the Road to Health card; the latter should be appropriately adapted for this purpose.
- 5.1.4 Alternatively, the vitamin A capsules should be administered through primary health care clinics (fixed or mobile) or by community health workers every six months during predetermined one-day campaigns. In either case, the dose should be recorded on the Road to Health card.
- 5.1.5 On the basis of recent available evidence, the time points for measles immunisation should not be used concurrently for vitamin A supplements and, therefore, the EPI schedule does not seem to be the appropriate timing for vitamin A supplementation. However, the EPI services can and should also be used for the capsule distribution programme. In this regard, it is also recommended that the reported interaction between vitamin A status and measles seroconversion is investigated further.
- 5.1.6 Breastfeeding should be promoted according to the recommendations made in Chapter 3.
- 5.1.7 Lactating mothers should receive a single dose (200 000 IU) of vitamin A within the first month postpartum during one of the postnatal visits.
- 5.1.8 Health care personnel and community health workers should be trained with regard to the documentation and administration of the supplements as well as the occurrence of any toxicity which should also be recorded.
- 5.1.9 Vitamin A supplements [200 000 IU soon after admission; 200 000 IU, 24 hours later (should not be administered if side-effects are present) and 200 000 IU four weeks later] should also be given to all children who present to health centres with

malnutrition, measles or diarrhoea. The administration of the supplements should be recorded on the Road to Health card.

- 5.1.10 All children should be treated for intestinal parasitic infestations. The feasibility of this programme should be established by the Department of Health. An environmental health programme on the prevention of re-infestation should also be introduced.
- 5.1.11 Effective management is crucial to the success of these recommendations and it should incorporate training for and monitoring and evaluation of the vitamin A supplementation programme recommended as well as its impact on morbidity and mortality. Vitamin A supplementation should be part of the training of the staff in child health and those caring for sick children.
- 5.1.12 Maternal education as well as education of health care personnel and of the public at large regarding the protective role of vitamin A against infections should also be undertaken.
- 5.1.13 The Directorate of Nutrition should establish a Consultative Group, such as SAVACG, specifically mandated to monitor the micronutrient status of children.

5.2 Medium-term

- 5.2.1 At the end of three years of vitamin A capsule distribution, a repeat survey should be conducted to evaluate the programme and to confirm the findings of the on-going monitoring and evaluation recommended in section 5.1.11.
- 5.2.2 Nutrition education at the household level regarding food diversification and the improvement of dietary quality to increase the dietary intake of vitamin A should be undertaken. This can be achieved by promoting child-to-child education programmes, the teaching and encouraging of preservation techniques of foods rich in vitamin A (or its precursor), and improving access to vitamin A-rich foods, especially in the rural areas. Although the promotion of home and school gardens with vitamin A-rich foods may be beneficial for other goals, its efficacy for improving the vitamin A status of the young child has been questioned.
- 5.2.3 The feasibility of fortifying food consumed in adequate amounts by the child at risk should be investigated by the Department of Health.

5.3 Long-term

- 5.3.1 The long-term improvement of the vitamin A status of children should be addressed within the proposed framework of the Nutrition Committee regarding an integrated nutrition strategy for South Africa, which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment.

CHAPTER 6: IRON STATUS

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendations 6.1.7, 6.1.8, 6.1.9, 6.1.10, 6.1.11, 6.1.12, 6.2.1, 6.2.2 and 6.2.3.

6.1 Short-term

- 6.1.1 An iron sulphate syrup supplement distribution programme should be instituted for three years primarily for all children in the 6-23 month age group.
- 6.1.2 For children 24-71 months of age, a screening system, using haemoglobin concentration, should be introduced and iron supplements administered as necessary.
- 6.1.3 Iron supplements should also be dispensed to children who have been ill, but only during the period of convalescence.
- 6.1.4 The form of iron supplements should be ferrous sulphate due to its low cost and reasonable bioavailability. For children 6-23 months of age, the daily dosage schedule should be 1 mg/Kg of elemental iron given orally twice a week. For older children, 30 mg of elemental iron should be administered orally twice a week for a month; the need for longer supplementation periods should then be re-evaluated.
- 6.1.5 The iron supplement should be distributed through primary health care clinics (fixed or mobile) or by community health workers. A record of the dispensing of the supplements should be kept in the Road to Health card.
- 6.1.6 Breastfeeding should be promoted according to the recommendations made in Chapter 3.
- 6.1.7 The feasibility of fortifying baby and toddler foods with iron should be investigated by the Department of Health with a view to implementation.
- 6.1.8 Health care personnel and community health workers should be trained with regard to the importance of iron in child development, and the dosage, administration and documentation of the supplements.
- 6.1.9 All children should be treated for intestinal parasitic infestations. The feasibility of this programme should be established by the Department of Health. An environmental health programme on the prevention of re-infestation should also be introduced.
- 6.1.10 Effective management is crucial to the success of these recommendations and should incorporate training for and monitoring and evaluation of the iron supplementation programme recommended.

- 6.1.11 As part of the recommended monitoring and evaluation programme, the efficacy of the recommended twice weekly dosage schedule as well as the reported retardation of weight gain in children with normal iron status who receive iron supplements should be further investigated. It is also recommended that, in conjunction with the recommendations for a vitamin A intervention programme, the suitability, in terms of the type and composition, of the currently available vitamin and mineral supplements dispensed at primary health care clinics is assessed and appropriately adapted. Further, the causes for the differences in the prevalence of poor iron status between urban and rural areas should be investigated.
- 6.1.12 Maternal education as well as education of the public at large regarding the role of iron in child development should also be undertaken.

6.2 Medium-term

- 6.2.1 At the end of three years of iron supplementation, a repeat survey should be conducted for the evaluation of the programme and the confirmation of the findings of the on-going monitoring and evaluation recommended in section 6.1.9.
- 6.2.2 Nutrition education at the household level regarding food diversification and the improvement of dietary quality to increase the dietary intake of iron should be undertaken. This can be achieved by promoting child-to-child education programmes and improving knowledge regarding iron-rich foods, especially in the urban areas.
- 6.2.3 Universal food fortification is not recommended in view of the reported high prevalence of iron overload in large segments of the adult population.

6.3 Long-term

- 6.3.1 The long-term improvement of iron status of children should be addressed within the proposed framework of the Nutrition Committee regarding an integrated nutrition strategy for South Africa which must be compatible with the ethos and principles of the government's Reconstruction and Development Programme for socioeconomic upliftment.

CHAPTER 7: IMMUNISATION COVERAGE STATUS

SAVACG offers its assistance in the implementation of those recommendations for which it has the relevant expertise and infrastructure. In terms of the recommendations made in this chapter, SAVACG can assist with recommendation 7.2.4.

7.1 Short-term

- 7.1.1 A surveillance driven programme should be developed using disease surveillance data to guide management decisions; such a system should allow for rapid reporting and response as well as the control of outbreaks with targeted immunisation responses.
- 7.1.2 Training in case definition, case detection and reporting procedures should be given to all health workers that may come into contact with vaccine preventable diseases.
- 7.1.3 Effective management should be established by defining the function of the EPI coordinators at every level. It should include human resource development, budgeting, logistic planning, disease surveillance, outbreak response, policy development, and forecasting. These tasks should be allocated to one person at each level. Successful management should also ensure the integration of services at health facility level, the maintenance of a national, provincial and regional support structure for EPI and the preparation of an annual report.
- 7.1.4 Public awareness of immunisation should be increased by advocating the use of community health workers to talk about immunisations in the language and idiom of the community; using every opportunity to talk to clinic attenders about immunisation and other aspects of preventive and primary care; developing a capacity at every level for dealing with questions and complaints by clients in a quick and meaningful way; encouraging the printed and electronic media to augment public understanding; and educating and re-educating the medical and nursing professionals.
- 7.1.5 "Missed opportunities" should be avoided by promoting the routine checking of the immunisation card with every visit to any health facility or provider; and by providing immunisation services every working day.
- 7.1.6 Rural communities should be especially targeted and reached by identifying underserved areas; creating and maintaining integrated primary health care mobile services to communities in such a need; collaborating with other state departments (Agriculture, Education, Police services, National Defence Force) to make full use of existing transport and distribution structures.

7.2 Medium-term

- 7.2.1 A functional referral system should be established for immunisations that cannot be given immediately in non-immunisation health facilities; opportunities for immunisations should also be created by offering evening or weekend clinics.

- 7.2.2 A child register (computerised or manual) should be set up at each clinic to assist with the identification and follow-up of children who have missed their follow-up date; developing a strategy to follow-up children who have not returned; and establishing a community network to assist in tracing of children.
- 7.2.3 "Mopping-up" campaigns should be introduced to eliminate pockets of low coverage by creating a feasible and specific campaign master plan on actions to be taken in distinct low coverage areas; encouraging provincial managers to eliminate low coverage areas with limited "mopping-up" or "raking" strategies; and training regional and district staff on how to manage such campaigns.
- 7.2.4 A plan for the development of a comprehensive monitoring quality control and impact assessment of the national immunisation programme should be established and implemented.
- 7.2.5 Adverse events following immunisation should be recorded and managed effectively by establishing clear national policy guidelines; creating a reporting and response mechanism from immuniser to national coordinator, so that any adverse events following immunisation do not harm the immunisation provision; and training staff at all levels to deal with such events in a sympathetic and helpful manner.

7.3 Long-term

- 7.3.1 A lifetime health record for each person should be established by devising a "self-retained health record" which will contain information on birth history, immunisation, growth monitoring, serious diseases, such as tuberculosis, allergies, and any chronic treatment.
- 7.3.2 The creation of an accessible, client-friendly service is of crucial importance and should be achieved by integration of services, social mobilisation, education and training, and research.

CHAPTER 9: GENERAL RECOMMENDATIONS

- 9.1 The Department of Health should establish and maintain an up-dated and nationally valid sampling frame for children for use in evaluating child health or the impact of interventions. The Department could achieve this goal in collaboration with research institutions and universities in the country.
- 9.2 The Department should liaise closely with the Central Statistical Services for the purposes of the next census. This process can be used to obtain relevant data that may be used to improve the focus of health interventions such as those suggested in this report.
- 9.3 Both the Department and the Medical Research Council with or without the assistance of the private sector should develop appropriate mechanisms to initiate multi-institutional and multisectoral research allowing South Africa to better develop its own health research capacity through national cooperation.
- 9.4 The Department at both national, regional and local level, as well as the Medical Research Council and universities should develop strategies, appropriately assisted with adequate funding, to respond to health research problems of major national, regional or local importance in relatively short periods of time.
- 9.5 The need for expert assistance to the three most disadvantaged (within the framework of this study) provinces should be assessed and, when assistance is required, strategies should be developed to make such expertise available.
- 9.6 SAVACG agreed and recommended unanimously that should the Department continue with food supplementation of children, such supplementation should be given to young children, i.e children up to the age of five years, or even only up to two years, rather than to children of school age.
- 9.7 A more specific study should be conducted regarding access to television services by South Africa's children and their caretakers, and a strategy should be developed for the optimal use of television for health education and promotion in both rural and urban populations.