

# Early Childhood Nutrition and Anaemia Prevention Project



## Executive Summary



The Fred Hollows Foundation



## Good nutrition and prevention of iron deficiency in infants and young children is essential to close the gap in health and educational attainment between Aboriginal<sup>1</sup> and non-Aboriginal Australians.

The Early Childhood Nutrition and Anaemia Prevention Project (ECNAPP) aimed to determine the feasibility and acceptability of a community nutrition program, involving home-based micronutrient fortification using a product called 'Sprinkles' to improve nutrition and prevent iron deficiency anaemia of Aboriginal infants and young children aged 6 months to 2 years. 'Sprinkles' are single dose sachets of multi-micronutrient powder that can be mixed in to any semi-solid food consumed by infants and young children.

Non-government organisations, Aboriginal Community Controlled Health Services and government health departments collaboratively implemented ECNAPP in six remote northern Australian communities between 2010 and 2012. All infants and young children aged 6 months to 2 years in these communities were eligible to participate. A total of 262 infants and young children

enrolled at a median age of 10 months and participated for a median duration of 7.7 months.

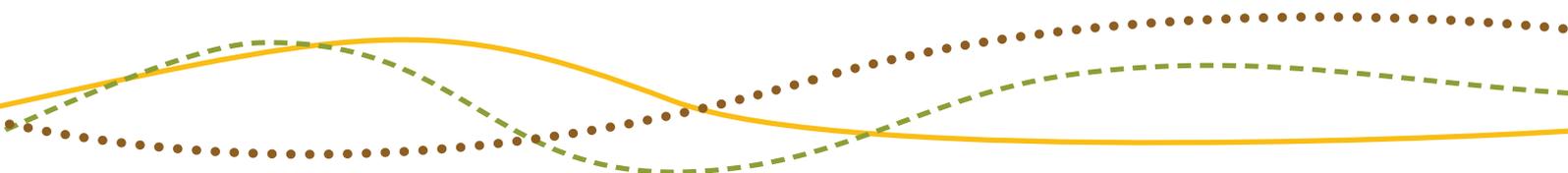
The project evaluation revealed important findings about nutrition and anaemia prevention in Aboriginal infants and young children and has implications for related research, program development and the delivery of primary health care services. There were major challenges that were not resolved within the project time frame, however, the project yielded some important achievements.

1. Most people living in the ECNAPP communities identify as Aboriginal and hence the term Aboriginal is used throughout this document. This does not exclude Torres Strait Islanders who also live in these communities.



## Key achievements

- High participation rate: 84% of the estimated 6 month - 2 year old population enrolled in the project
- Increased understanding of the extent of anaemia in Aboriginal infants and young children and potential strategies which can be implemented to prevent and treat anaemia
- Insight in to the dietary patterns of Aboriginal infants and young children in remote northern Australian communities
- Adaptation of the WHO Infant and Young Child Feeding Counselling Course to meet the needs of health and community services workers supporting Aboriginal families in remote communities; this modified program is now available as Talking about Feeding Babies and Little Kids
- Improvements in the research capacity, nutrition knowledge and confidence of Aboriginal Community Based Workers (CBWs), establishing a valuable resource for future research and programs
- Good retention of Aboriginal CBWs, and the establishment of partnerships between non-indigenous health practitioners and CBWs



# Key findings

## 1 **Infants and young children had much higher rates of anaemia, and at an earlier age, than expected.**

At 6 months of age 56% of infants were found to be anaemic using haemoglobin (Hb) measured by HemoCue in routine primary health care. This result is approximately double the rate reported for 6-<12 month olds in other northern Australian communities. Nearly 90% of infants and young children were anaemic at least once between 6 months and 2 years of age.

## 2 **Adequate supply of 'Sprinkles' appears to maintain Hb levels in non-anaemic children.**

An adequate dose of 'Sprinkles' to prevent anaemia is 60-120 sachets per infant/child consumed over a period of up to four consecutive months. Of the 204 infants and young children who were included in the program for at least four months, 76 (37%) received  $\geq 60$  sachets during this period. As ECNAPP proposed a preventive approach to anaemia, the analysis of the potential impact of 'Sprinkles' on Hb levels was undertaken on 31 infants and young children who entered the project as non-anaemic and received an adequate dose of Sprinkles in the first four months of participation. Their median Hb level was maintained at 115g/L after four months whereas the median Hb level declined significantly from 115 g/L to 107 g/L ( $p < 0.0001$ ) in children who were non-anaemic at entry but did not receive adequate 'Sprinkles' during the four month period. The difference in change in median Hb levels between the two groups did not reach significance ( $P = 0.09$ ).

## 3 **'Sprinkles' and other program activities were accepted by the community.**

Mothers and other community members reported positive acceptance of 'Sprinkles'. Few problems using 'Sprinkles' were reported. Mothers and other community members who were engaged in the project were supportive of program activities continuing.

## 4 **Adequate distribution of 'Sprinkles' was not achieved for widespread effect.**

Only 35% of the weekly home visits occurred, resulting in a much lower than planned distribution of 'Sprinkles'. Most visits did not occur for a number of management and/or administrative reasons, including the CBWs did not always have transport, CBWs were absent for

training and CBWs were absent for personal and/or family reasons. Home visits also did not occur because the mother and baby were not in the community. Of the visits that did occur, 86% of visits resulted in 'Sprinkles' distribution.

## 5 **Community Based Workers were important in their communities but experienced difficulties in their role.**

CBWs experienced a range of difficulties such as lack of workplace support and family and cultural pressures. At times CBWs were unable to access the resources required to do their work due to poor support within their workplace. However, from the community perspective the CBW role was important and valued.

## 6 **A limited variety of foods were consumed, in particular nutrient rich foods.**

Breastfeeding was frequently reported but complementary food intake for the infants and children involved in the program did not meet Australian Dietary Guidelines for healthy dietary patterns in 67% of food intake surveys. 'Non-core' foods (eg sweetened drinks) were often reported as a usual part of the infants and young children's diet. Iron-rich foods were reported in only 45% of food intake surveys of 6-<9 month olds, and fruit was reported in only 5%.

## 7 **Implementation of nutrition counselling and education was limited.**

Nutrition information was provided at 12% of visits. Mothers were with provided information about how to use, store and access 'Sprinkles' at 35% of visits. Time and resource constraints meant development of nutrition training occurred concurrently with project implementation. Mothers and other community members reported that they enjoyed community-based group activities and remembered the content presented during these sessions.

## 8 **Routine child health check/growth assessment and anaemia treatment protocols were poorly adhered to.**

Only 59% of infants and young children had complete baseline measurements of weight, length/height, and haemoglobin recorded in their electronic health records. Only 29% of infants and young children who were anaemic at some point during the project received a full course of iron treatment at the Health Centre.

# Implications

- High rates of anaemia seen in infants at 6 months of age indicate that preventive strategies need to start earlier.
- The relative contribution of maternal influence and other factors related to anaemia in infancy need to be better understood.
- If adequate distribution can be achieved, it is likely that providing 'Sprinkles' or other multi-micronutrient supplementation will maintain the haemoglobin levels within the normal range for infants and young children without anaemia.
- To improve distribution of 'Sprinkles', or other multi-micronutrient supplementation, further understanding of the enablers to achieving adequate distribution and exploration of additional strategies to increase distribution is required.
- Community Based Workers have an important role in outreach and community based health promotion, but an understanding of how to better support them is required.
- The beneficial breastfeeding practices seen need to be protected, promoted and supported.
- The poor nutritional quality of complementary foods consumed by infants and children, which is consistent with the poor overall quality of the community diet, needs further attention.
- Provision of routine child health checks and growth assessment and adherence to treatment protocols in primary health care needs to be improved.

# Recommendations

## 1 Priorities for health services are:

- 1.1** To determine if the high rates of early onset anaemia found in ENCAPP are widespread across remote communities in northern Australia, and take action to address the findings, and
- 1.2** Ensure remote primary health care services undertake routine antenatal and child growth and development checks, and provide treatment according to relevant protocols. Protocols for routine checks and/or treatment may need to be revised in some settings.

## 2 Considerations for community programs are:

- 2.1** To ensure there is adequate time and resources for training and development of Community Based Workers prior to program implementation, and
- 2.2** Develop supportive workplaces for Community Based Workers.



## 3 Areas for further research include:

- 3.1** Investigate the relative contribution of micronutrient status and other determinants of anaemia in Aboriginal infants and young children in remote northern Australian communities,
- 3.2** Investigate strategies to address the determinants of anaemia and effectively prevent anaemia and iron deficiency in Aboriginal infants and young children in remote northern Australian communities,
- 3.3** Explore how to improve the distribution of 'Sprinkles' or similar multi-micronutrient supplements, including additional strategies for distribution,
- 3.4** Improve the understanding of infant and young child feeding practices in remote northern Australian communities and further investigate the determinants of these feeding practices within Aboriginal research frameworks,
- 3.5** Further investigate strategies to improve household food security, selection and distribution in remote northern Australian communities, with a focus on mothers, infants and young children, and
- 3.6** Further evaluate the impact of the Talking about Feeding Babies and Little Kids program on the skills and capabilities in nutrition counselling and education of health and community service workers, community capacity, and outcomes for infants and young children.

For more information contact:

**The Fred Hollows Foundation** • Indigenous Australia Program  
PO Box 42500 Casuarina NT 0811 • 08 8920 1400  
[www.hollows.org](http://www.hollows.org)

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