Adherence to management guidelines for growth faltering and anaemia in remote dwelling Australian Aboriginal infants and barriers to health service delivery

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Abstract

Background: Remote dwelling Aboriginal infants from northern Australia have an extremely high burden of disease and frequently attend primary and referral level health services during their first year. Little is known about the quality of care provided at the primary health level or the issues affecting health service delivery. This study describes clinicians’ adherence to management guidelines for growth faltering and anaemia in Aboriginal infants attending remote primary health centres and identifies barriers to health service delivery in these settings.

Methods: A retrospective cohort study of infant anaemia and growth faltering prevalence and treatment, and interviews with remote health centre clinicians (n=24). All eligible Aboriginal infants from two remote communities in northern Australia, born at the regional hospital, in hostel accommodation, in transit to hospital or in their home community between 1 January 2004 and 31 December 2006, with a remote health centre record were followed up to one year of age (n=398). The main outcome measures were the proportion of infants with anaemia and growth faltering and management of these conditions according to local guidelines. Qualitative data assessed clinicians’ perspectives on barriers to the delivery of remote infant health services.

Results: Data from 398 health centre records were analysed. Sixty eight percent of infants were anaemic between six and twelve months of age and 42% had documented growth faltering by one year. Analysis of the growth data by the authors
however found 86% of infants experienced growth faltering over 12 months. Clinical management and treatment completion was poor for both conditions. High staff turnover, fragmented models of care and staff insufficiently prepared for their role were barriers perceived by clinicians’ to impact upon the quality of service delivery.

**Conclusion:** Diagnosis of growth faltering and clinicians’ adherence to management guidelines for both conditions was poor. Antiquated service delivery models, organisation of staff and rapid staff turnover contributed to poor quality of care. Service redesign, education and staff stability must be a priority to redress serious deficits in quality of care provided for these infants.

**Keywords:** Aboriginal, adherence, anaemia, Australia, barriers, growth faltering, infant, management guidelines, primary health care, remote
Background

Health outcomes of Australian Aboriginal children are significantly worse than their non-Aboriginal counterparts [1]. These differences are manifest in two to three times higher rates of perinatal mortality, preterm birth and low birth weight [2]. The prevalence of anaemia and nutritional problems is much higher in Aboriginal children during their first years of life as is the overall burden of disease and hospitalisation rate [3-6]. Most Aboriginal people live in cities and regional areas; with one quarter residing in remote communities [7]. Aboriginal people living in these communities tend to have worse health outcomes than those in urban or larger rural areas [8]. Remote dwelling Aboriginal infants access primary health services approximately once a fortnight in their first year, predominantly for respiratory, skin and gastrointestinal infections [9-10]. Routine growth and anaemia monitoring are also common reasons for presentation during infancy [10]. Despite frequent utilisation of services, there are limited data describing the quality of services [11 – 12]. Therefore, we aimed to measure the quality of service delivery provided to Aboriginal infants in remote health centres (HCs) against local guidelines, using growth faltering and anaemia as indicators, and identify barriers to improving health service delivery.

This paper reports on baseline data from the ‘1+1=A Healthy Start to Life’ project. It used a participatory approach and a mixed method design to inform interventions led by health service staff to improve maternal infant care for remote dwelling families in northern Australia. The project was developed in response to concerns voiced by Aboriginal women, policy makers and clinicians about the quality of maternal and infant health services.
Setting:

Study sites were HCs in two large (population 2200-2600) remote Aboriginal communities situated around 500km from the regional hospital in Darwin, which is in the Northern Territory of Australia. English is typically the second or third language in these communities, unemployment common and family income among the lowest in the country [13].

Health centres are open during business hours with staff ‘on call’ for emergencies. Most health care is provided by registered nurses (RNs), midwives and Aboriginal Health Workers (AHWs) within the HCs. An onsite doctor sees patients on a referral basis and manages high rates of chronic disease. Outreach paediatricians and child health nurses from Darwin visit regularly. There are no in-patient beds in the HCs so infants requiring medical evacuation are flown to the regional hospital.

There is a high turnover and on-going shortage of nursing and midwifery staff working in remote settings and those with midwifery and child health qualifications have declined from 65% and 18%, respectively in 1995 to 29% and 11% in 2008 [14-15]. Management guidelines for common infant presentations in remote practice are contained in a Standard Treatment Manual [16]. This is designed to be used by all remote clinicians and standardise care.

Ethics approval was obtained from the Human Research Ethics Committee of the Menzies School of Health Research, and remote community leaders. Written consent was obtained from interview participants.
Methods

We used a mixed-methods approach [17] integrating a retrospective cohort study and interviews with clinicians to identify barriers to high quality remote health service delivery. Data was collected between January-August 2008.

Retrospective cohort study

We undertook a retrospective cohort study of all Aboriginal infants from these communities, collecting data from birth to age one. Infants born 1 January 2004 to 31 December 2006 with gestation of at least 20 weeks or birth weight of at least 400 grams and born at the regional centre hospital, in hostel accommodation, in transit to hospital or in the remote community, were included. We constructed the study cohort through manual data linkage between community birth records and medical records at the two HCs and the regional hospital, identifying 424 eligible infants. Of these infants, 11 (2.6%) had no community or hospital record. The final cohort consisted of 413 infants; 398 of these infants had a remote health centre record available for review.

Data were collected by manually reviewing the infants’ medical record at the remote HCs. We collected data in Table 1 and assessed it against guidelines [16] for the identification and management of infants with anaemia and growth faltering. Health centre clinicians reported these conditions to be commonly occurring and problematic to manage. Prevention of nutritional disorders during infancy is imperative as early
growth and development form the foundation for health and learning throughout the rest of life [18].

**Table 1: Infant data collection and guidelines**

*Interview data*

The first author conducted 24 semi-structured interviews with clinicians who provided or managed child health services in the two remote study sites (Table 2). Seventy one percent of clinicians ($n=17$) were resident in the remote community; the remainder based in the regional centre; providing outreach services. Initial purposive sampling recruited 17 clinicians with snowball sampling recruiting a further seven clinicians. Recruitment continued until data saturation had been achieved in the analysis. Interviews included core questions about the clinicians’ role, experience and views of remote infant health services and barriers to service delivery.

**Table 2: Interview Participants**

*Data Analysis*

Medical record data were entered into an Access (™ Microsoft Corporation) database, cleaned and analysed using Stata version 11.1 (™ Statcorp, College Station, Texas). Continuous data are reported as means (1 standard deviation (SD), 95% Confidence Interval (CI)) or medians (Interquartile Range (IQR)). Dichotomous data are reported as proportions. Z-scores based on World Health Organization (WHO) Child Growth Standards were derived using WHO published software for Stata [19].
Interviews were audio recorded with participant’s consent and transcribed verbatim. Field notes written during and following interviews described the setting, participant’s behaviours, body language and non-verbal communication. Pseudonyms were used for anonymity. The transcribed qualitative material was analysed by the first author using content analysis in ATLAS T.I 5.4 (™ Scientific Software Development GmbH, Berlin, Germany). The transcriptions were examined to identify issues and themes in the data, assigning codes to units of meaning apparent in each paragraph or sentence. Data were then consolidated into higher-level categories and core themes identified. Frequencies evident within the core themes were then ascertained.

Results

Anaemia
Guidelines recommend Hb monitoring at six monthly intervals from six months of age [16]; 85% (n=338) of infants with an available health record (n=398) had at least one recorded Hb between 6-12 months. Anaemia prevalence among these infants was 68% (n=228) (95% CI 62.6-72.7); mean Hb 97.3gm/dl at first diagnosis (SD 9.3, 95% CI 96.1-98.5) when the mean age at diagnosis was 7.6 months (SD 2.8 months, 95% CI 7.3-8.0).

Twenty percent of anaemic infants (n=48) had documented dietary advice, 27% (n=62) received a complete course of Albendazole supervised by a HC staff member. One third of infants (n=68) received a completed course of iron (1-3 IM injections based on age and body weight) and 28% (n=65) did not receive any iron treatment
despite having documented anaemia. A follow-up Hb was provided to 60% of anaemic infants \(n=137\). Less than one third \(n=11/42\) of infants with an Hb <9gm/dl received folate.

**Growth faltering**

Hard copy growth charts based on international references (20) were used for growth monitoring during the study period. Guidelines recommended regular growth monitoring and immediate intervention for faltering, commencing from birth. Growth faltering was documented by clinicians in HC records of 42% \(n=167\) of infants by age 1.

**Z-Scores**

Using observations of weight recorded for each individual infant on these records, we found for 2357 observations of weight. The mean weight for age z-score was -0.80 (sd 1.28, range -5.7 to 2.9) (Figure 1). There was no significant difference between male and female infants. For 940 observations of length, the mean length for age z-score was -0.91 (sd 1.6, range 13.5 to 3.64) and for 931 observations of concurrent weight and length, the mean weight for length z-score was -0.21 (sd 1.4, range -5.1 to 9.36) (Figure 1).

**Figure 1: Weight for Age and Height for Age Z-scores**

Analysis of z-score data revealed a high proportion of infants underweight, stunted or wasted in their first year (Table 3). Authors 1 and 2 independently analysed each infant’s z-scores and identified growth faltering in 86% \(n=322/374\) of infants.
compared to 42% documented by clinicians in HC records. Of the 374 infants with two or more recorded weights: 55 (14.7%) had no growth faltering, 167 (44.6%) had a loss of less than 1 z-score, 126 (33.6%) lost between 1 and 2 z-scores, 24 (6.4%) lost between 2 and 3 z-scores and 2 (0.5%) lost greater than 3 z-scores.

Table 3: Infants who are underweight, stunted or wasted

Among all infants with growth faltering (n=322), less than half received additional growth monitoring. Delivery of other interventions recommended in guidelines was often low (see Table 4).

Table 4: Growth faltering treatment guidelines and proportion of growth faltering infants receiving interventions

Barriers to remote health service delivery

Interviews were undertaken to validate and explain our quantitative findings. Analysis of interview data revealed clinicians’ perspectives on barriers to health service delivery. These were particularly related to institutional factors and staff capacity. All clinicians interviewed recognised the quality of care for these infants was suboptimal.

Organisational structure

Clinicians identified poor organisation and inadequate staffing of the HCs as significant barriers to health care delivery. Each HC had one or occasionally two nurses designated to provide primary child health care services to the under 5 population (approximately 300-320 children, of which were 60-80 infants). One HC
provided the primary health service on a part-time basis; the other provided a full time
service.

Given the high volume of acute and complex presentations in both HCs, additional
HC staff would frequently be required to assist with clinical management of infant
cases. This interfered with the ability of staff to provide continuity of care and
effective follow up of infants with identified problems. For example, an infant
presenting to the HC over a number of days could be seen by a different staff member
at every presentation. Rarely did infants who presented with an acute illness receive
routine or overdue health assessments unless designated child health clinicians saw
them. Most non-designated child health clinicians did not view growth assessment,
immunisations, anaemia checks or follow-up treatment as their responsibility, as one
clinician observed:

‘..the child health nurse will write [in the medical notes] ‘this child needs a Hb at the
next check’ but the kid’s seen for acute presentations 20 times in between and it’s
only when they get back to the well baby clinic (primary health service) that they get
that Hb’ (F1)

The high turnover of staff was also perceived to compromise continuity of health care
delivery. During the eight-month data collection period, each HC had 5-7 different
nursing staff rotating through the child health services; 75% of these were on short-
term contracts (2 weeks - 6 months).
Medical models of care

The high burden of disease in both communities was thought to have contributed to the health service’s long-standing focus on acute care and lesser value placed on preventative health care and education. One clinician stated:

‘We see the same kids week in week out with respiratory illness. We give them antibiotics and send them home. This is a major issue here. Yeah, I guess you know you are never going to fix these kids as we don’t deal with the real problem…the preventive stuff like everyone in the house smoking all the time.’ (S3)

Linguistic and cultural barriers, including a lack of interpreters and culturally appropriate health education resources; and the complexity of family dynamics, were also noted to compromise effective health service delivery.

Inadequate staff knowledge and skills

Only one nurse interviewed had formal child health qualifications, two had not previously worked with children and three were working in a remote health service for the first time. The lack of child health knowledge and skills specific to the needs of Aboriginal children particularly among nursing staff were compounded by reports of inadequate orientation to the health service and a lack of familiarity with the use of guidelines and surveillance tools, such as growth monitoring charts and limited opportunities for ongoing education or mentoring by senior staff.

More than half of the HC based nurses interviewed did not feel competent to provide culturally appropriate health care to Aboriginal families and reported difficulties
managing failure to thrive and nutritional issues. Illustrating this point, one participant noted:

‘I don’t know how to challenge families about feeding issues..you know the kid isn’t being fed properly but I feel like if you say this, it’s just shame (public embarrassment) and they’ll just think ‘stuff her’ and not come back.’ (L5)

Lack of Aboriginal staff

Many clinicians described the lack of AHWs, senior Aboriginal women or other local Aboriginal community workers involved in the delivery of infant health care services. In both HCs, AHWs were predominantly working in administrative roles, despite their extensive clinical experience. Clinicians reported a steady decline in the number of AHWs and in their scope of practice. All non-Aboriginal clinicians described AHWs as imperative to effective health service delivery given their experience, relationships with local families, language, cultural and community knowledge.

Other barriers to service delivery, less frequently reported, related to the family’s responsibility to attend for care when required for follow-up treatment. Families often spent time away from their home communities; for funerals, ceremony or bush holidays and did not present with their infants for care when this had been planned.

Families were usually dependent on transport provided by the HC to attend follow-up appointments, as there was no public transport available. At times, a lack of drivers or vehicles meant that families were not brought to the HC when required. On other occasions, drivers or clinicians themselves would present numerous times to the
families home but they would either not be there or refuse to be transported to the HC because the timing was inconvenient. Clinicians also reported visiting families who were known to be ‘poor attendees’ at their home to ‘encourage’ their attendance. These strategies fail to increase the capacity of families to take responsibility for the health of their children though clinicians often reported the dilemma of not ‘chasing up families’ versus the rights of the child to receive health care.

**Discussion**

Access to high quality health care services is essential to good health. The findings from this study show remote NT health services are not providing effective management of anaemia nor adequate identification of growth faltering for Aboriginal infants.

Growth faltering and anaemia prevalence was higher than previously documented [18,19, 21]. We detected a higher proportion overall of infants underweight (14%) and stunted (14%) compared to other infants across the NT during the same years (12% and 7% respectively) but a lower proportion of infants wasted by age 1 (5% vs. 9%) [21]. Comparing our results with previous health service data is problematic as the NT data reports single sets of measurements per child as opposed to the mean of all individual measurements collected from birth to age one.

Growth faltering was documented for 42% of infants, however we identified over twice that number. Poor identification and management of infant health problems was contributed to by staff not receiving adequate education, orientation to remote health
services, lack of familiarity with local guidelines and inadequate skills in accurately or systematically plotting and interpreting growth. Electronic systems are now being used in many HCs, where computer programs plot infant’s growth against international standards. This will lessen the risk human error in the plotting of measurements.

Remote dwelling Aboriginal infants access HCs frequently from an early age [15-16] and clinicians were overburdened by the volume and complexity of presentations. This compromised their ability to provide good care. Poor organisation and utilisation of existing staff was identified, such the AHWs in these settings, being used in administrative roles despite their experience and knowledge.

Lack of continuity, which in this study arose from high staff turnover, staff being moved between different health program areas and multiple (or absent) handovers of care, will increase errors and jeopardise safety [22]. Continuity of carer is a critical component of primary health care known to improve the quality of service delivery [23]. Studies indicate that continuity of carer at the primary care level reduces hospital admissions, improves compliance with treatment, increases preventive care and improves relationships between clinician and patient [24-25]. Maintaining skilled and knowledgeable continuity of carer can be challenging in this context given the high staff turnover and difficulties retaining staff in remote communities [26] but should be a priority.
Service redesign that includes appropriate staffing based on service utilisation patterns and actual workload [27-28] with community based health service delivery by community workers (CWs) could improve quality of care [29]. This might also reduce the high work load in HCs, allowing HC based clinicians to concentrate on providing acute care.

Evidence supports the need for early intervention in the treatment of growth and nutritional conditions. Community-based interventions however, involving carers and other CWs are effective in addressing underlying issues and prevent repeated episodes [30-31] and need to be considered as part of health service planning for this population. The use of carefully chosen, appropriately trained and well-supported CWs for the delivery of health education, basic primary health care and to provide linkages to health services has been a successful strategy in many under resourced settings [29]. In this study, we identified very poor engagement of clinicians with carers to address growth and nutritional issues and absence of community based services.

There is an urgent need for increased child health skills and knowledge with most nurses lacking qualifications or experience, despite working with a population who have among the poorest child health outcomes in Australia. In other Australian settings, unqualified staff would not provide this care. Over the past decade, there have been increased educational opportunities for RNs working in remote settings [32]. However, only 5% of the nurses who work in very remote Australian health services have specific skills and qualifications for their advanced practice role [9]. A lack of financial support to undertake further education, high workloads and on call hours makes continuing education difficult in this setting.
Cultural competency in health delivery can improve outcomes for Aboriginal mothers and infants [33-34] but attention to this was also absent. Further, understanding of child rearing practices also need to be available so any differences in parenting behaviours and values are incorporated into health messages [35].

Approaches are underway in remote NT communities to improve child health services and quality of care. These include an new evidence based health care delivery program targeting under 5s, designated qualified Child and Family Health Nurses who will provide community based care thus increasing flexibility and access to services and increasing the numbers of community-based family support workers. Also a newly developed and Indigenous focused Graduate Diploma in Child and Family Health is now offered by the local university, by distance learning.

Many remote HCs now implement quality improvement strategies including monitoring of health performance and outcome indicators and providing feedback to clinicians to improve health care accountability [36]. The measures used here provide important data for clinicians providing infant health services. These findings have been reported to Local Reference Groups in the communities and to senior policy and clinicians in the NT as part of the participatory action research study design and have contributed to improvements.

Limitations: In the NT, Aboriginal children and their families are highly mobile [37] and it is possible that the infants may have presented for additional healthcare at other HCs not reviewed as part of this study and this may bias our results. Preventive health
care is often opportunistic in remote health centres and some infants may have had their haemoglobin checked by a clinician if they presented at 5 months and anaemia treatment commenced at that visit. Our data collection did not capture these infants who may have had this care at an earlier date.

Conclusions

Australian Aboriginal infants have worse health outcomes than non-Indigenous infants and care provided is of inadequate standard. Growth faltering and anaemia are preventable, occur too frequently and are poorly treated. Service design, lack of continuity of carer and staffing organisation and capacity are contributing factors. These must be urgently addressed to reduce the unacceptably high disparities in health outcomes for Aboriginal infants.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

SBZ was responsible for the study design, obtaining ethical approval, data collection, and data analysis and drafting the manuscript. NBZ assisted with data cleaning and analysis. SGK, participated in designing the study and assisted with data analysis. LB and SVK provided comments on the study design, analysis and the manuscript. All authors read and approved the final manuscript.
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NBZ is supported by a National Health and Medical Research Council Training Scholarship in Indigenous Australian Health Research and the Australian Academy of Science Lola Douglas Award for Medical Science.

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### Table 1: Infant data collection and guidelines

<table>
<thead>
<tr>
<th>Anaemia diagnosis criteria</th>
<th>Haemoglobin (Hb) &lt;110g/dl</th>
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</thead>
<tbody>
<tr>
<td><strong>Anaemia monitoring</strong></td>
<td>Recorded Hb between 6-12 months</td>
</tr>
<tr>
<td></td>
<td>Hb at 1\textsuperscript{st} diagnosis of anaemia</td>
</tr>
<tr>
<td></td>
<td>Age and weight at 1\textsuperscript{st} diagnosis</td>
</tr>
<tr>
<td><strong>Treatment guidelines for anaemia</strong></td>
<td>Dietary advice</td>
</tr>
<tr>
<td></td>
<td>Albendazole (parasite) treatment: (given for 3 days)</td>
</tr>
<tr>
<td></td>
<td>Iron treatment: (Type of treatment, number of intramuscular doses)</td>
</tr>
<tr>
<td></td>
<td>Folate for Hb &lt;9gm/dl</td>
</tr>
<tr>
<td></td>
<td>Follow up haemoglobin after 4 weeks</td>
</tr>
<tr>
<td><strong>Poor growth/ growth faltering criteria</strong></td>
<td>A child is not growing well if their plotted weight does not follow the shape and direction of the centile growth curves on the growth charts of if there has been no weight increase for:</td>
</tr>
<tr>
<td>Age</td>
<td>Time of no weight increase</td>
</tr>
<tr>
<td>Less than 2 months</td>
<td>2 weeks</td>
</tr>
<tr>
<td>2-6</td>
<td>1 month</td>
</tr>
</tbody>
</table>
| Growth monitoring | Record of ‘Road to Health’ chart  
|                  | Record of Growth Action and Assessment  
|                  | (GAA)* form (used for recording of Hb,  
|                  | weight, height and head circumference)  
|                  | Number and timing of GAA visits  
|                  | Weight, height and head circumference at  
|                  | each GAA visit |

| Treatment guidelines for growth faltering | Where growth faltering identified, intervention recorded:  
|                                          | Additional growth monitoring  
|                                          | Nutritional education  
|                                          | Supplemental food for growth catch up  
|                                          | Medical checklist  
|                                          | Paediatric referral  
|                                          | District Medical Officer (DMO) referral  
|                                          | Growth Action Plan**  
|                                          | Community support services (e.g.:  
|                                          | community/early childhood programs that  
|                                          | support child health, feeding programs,  
|                                          | referral to family support workers)  
|                                          | Vitamin A |
Hospitalisation for failure to thrive
Family meeting

*GAA was a NT government program for remote dwelling children under five years at the time of the study. It was designed to improve growth and nutritional status through monitoring of growth and anaemia and early intervention.

**A Growth Action Plan was designed for implementation by the clinicians to ensure timely and appropriate interventions for the infant as soon as growth faltering was detected.
Table 2: Interview Participants

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>Clinicians (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC 1 (n=9)</td>
<td>District Medical Officers (n=2)</td>
</tr>
<tr>
<td></td>
<td>Remote Area Nurses (working in general roles)</td>
</tr>
<tr>
<td></td>
<td>(n=2)</td>
</tr>
<tr>
<td></td>
<td>Remote Area Nurses (working in child health roles) (n=2)</td>
</tr>
<tr>
<td></td>
<td>Aboriginal Health Workers (n=1)</td>
</tr>
<tr>
<td></td>
<td>Managers (n=2)</td>
</tr>
<tr>
<td>HC 2 (n=10)</td>
<td>District Medical Officers (n=2)</td>
</tr>
<tr>
<td></td>
<td>Remote Area Nurses (working in general roles)</td>
</tr>
<tr>
<td></td>
<td>(n=2)</td>
</tr>
<tr>
<td></td>
<td>Child Health Nurses (working in child health roles) (n=3)</td>
</tr>
<tr>
<td></td>
<td>Aboriginal Health Workers (n=1)</td>
</tr>
<tr>
<td></td>
<td>Managers (n=2)</td>
</tr>
<tr>
<td>Regional Centre (n=5)</td>
<td>Outreach (visiting) Child Health Nurses (n=2)</td>
</tr>
<tr>
<td></td>
<td>Outreach (visiting) Paediatricians (n=3)</td>
</tr>
</tbody>
</table>
Table 3: Infants who are underweight, stunted or wasted

<table>
<thead>
<tr>
<th>Anthropometric measure</th>
<th>Percent of infants with mean z-score &lt;-2</th>
<th>Percent of infants with a z-score &lt;-2 at least once in first year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (weight for age)</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>Stunted (Length for age)</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>Wasted (Weight for length)</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>
Table 4: Growth faltering treatment guidelines and proportion of growth faltering infants receiving interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n=322 )</td>
</tr>
<tr>
<td></td>
<td>( n \ (%) )</td>
</tr>
<tr>
<td>Extra growth monitoring</td>
<td>154 (48%)</td>
</tr>
<tr>
<td>Nutritional advice</td>
<td>110 (34%)</td>
</tr>
<tr>
<td>Nutritional supplements</td>
<td>65 (20%)</td>
</tr>
<tr>
<td>Medical checklist</td>
<td>61 (19%)</td>
</tr>
<tr>
<td>Referral to paediatrician</td>
<td>58 (18%)</td>
</tr>
<tr>
<td>Referral to District Medical Officer</td>
<td>48 (15%)</td>
</tr>
<tr>
<td>Growth Action Plan</td>
<td>48 (15%)</td>
</tr>
<tr>
<td>Community support/services</td>
<td>24 (7%)</td>
</tr>
<tr>
<td>Vitamin A/Zinc</td>
<td>21 (7%)</td>
</tr>
<tr>
<td>Hospitalisation for failure to thrive</td>
<td>19 (6%)</td>
</tr>
<tr>
<td>Family meeting</td>
<td>16 (5%)</td>
</tr>
</tbody>
</table>
Figures

Figure 1: Weight for Age and Height for Age Z-scores