Medical Report

South Africa, KwaZulu-Natal 2019
In collaboration with
LETCEE & Kinderfonds MAMAS

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1. Introduction

From September 21th until September 28th 2019, a Medical Checks for Children (MCC) team visited five locations in KwaZulu-Natal, a province in the south-east of South Africa. Free of cost, the MCC team checked and treated 848 children, aged newborn until 12 years. The team consisted of Shirley Martens, paediatrician and medical mission leader; Yvonne Verdonk, paediatric nurse and organizational mission leader; Rosanne Broers paediatric resident; Natasja Kruger family physician; Erica van Maanen, family physician; Marleen Offermans family physician in training; Mariska Jansman paediatric nurse; Marlies Kok paediatric nurse; Jankina Ligtvoet paediatric nurse; Carine Geurts, specialist in hospitality; Michiel van Wulfften Palthe consultant.

Our host patron during our stay was Mary James, director of 3 Letcee projects, in partnership with the Dutch organization Kinderfonds MAMAS. This was the fourth mission to this region in South Africa and catering for the same areas as the 2017 medical mission. Technical equipment and some of the supplies were brought from the Netherlands by the MCC team members. Most of the medication was ordered through the local Greytown pharmacy, with the help of Dr Kethiwe. Hundreds of knitted hats, sweaters and blankets were donated by compassionate volunteers in our home country.
Kinderfonds MAMAS (Children's Fund MAMAS) is a Dutch charity organization that has been co-funding dozens of high-quality grassroots childcare organizations all across South Africa since 2000. Kinderfonds MAMAS believes in MAMA POWER! LETCEE works under the umbrella of Kinderfonds MAMA as a local organization.

LETCEE is a non-profit organization that operates from Greytown, in the heart of the KwaZulu-Natal midlands. The name (Little Elephant Training Centre for Early Education) is derived from the Zulu name for Greytown eNdlovana – the place of the little elephant. LETCEE's mission is to build the confidence and capacity of adults so that they will create nurturing environments for the children in their communities.
The cooperation with LETCEE consisted mainly of the following (amongst others):

- Identifying and engaging the local stakeholders;
- Prior announcement and preparations of the medical camp in the locations;
- Selection of locations and selection of the children;
- Giving full support to the MCC team during the medical camp;
- Commitment to ensure relevant medical follow-up.

The MCC team was delighted by the cooperation with Mary James and all the local (healthcare) workers and retired nurses who helped us during this fourth medical camp under the strong leadership of our partner Kitso Maragelo.

2. Medical Checks for Children on location

During the medical checks, the children were checked following the MCC carrousel:

1. Registration of the child
2. Measuring height and weight
3. Blood test for Haemoglobin

4. Physical examination
5. Giving medication and education about the correct use of it (pharmacy)
6. Education on hygiene and tooth brushing (a tooth brush was given to each child)
7. Food station on some locations

Data collection

Anthropometric measurements were recorded, and a finger prick sample was taken for determination of the Haemoglobin (Hb) concentration. Each child was examined by a Medical Doctor. History of illnesses was recorded. Specifically, caretakers were asked if the child had fever, diarrhoea, an upper respiratory infection, vomiting, decreased appetite and/or weight loss. They were also asked if their child received treatment for any condition, and if so, from where. The data of the children are saved and analysed through the MCC database.

3. General information on the different locations

KwaZulu-Natal is located in the southeast of South-Africa, enjoying a long shoreline beside the Indian Ocean and sharing borders with three other provinces and the countries of Mozambique, Swaziland and Lesotho. Its capital is Pietermaritzburg and its largest city is Durban. It is the 2nd most populous province in South Africa with slightly less than Gauteng. 3.5 million children and adolescents live in the KwaZulu-Natal province, this approximately 23% of all the children living in South-Africa.

The average household has 5.5 members with an income of less than 1 dollar per day per member. Unemployment in this region is high: 50-75%. Adult views on an acceptable standard of living for children are captured in the South African Social Attitudes Survey[1].

The top five socially perceived necessities for children identified by adults are:

- Three meals a day
- Toiletries to be able to wash every day
- A visit to the doctor when ill and access to the required medicines
- All fees, uniform and equipment required for school
- Sufficient clothing to keep warm and dry

Children experience poverty in a range of ways. They highlight threats to personal safety, both in the home and in the community. Whether or not children personally experience violence or abuse, anxiety about it is an important feature of childhood experience in the context of poverty. The result is that the circle of poverty, abuse, malnutrition and neglect becomes even wider.

[1] Bradshaw, J. and Holmes, J. (2010) 'Child poverty and social exclusion in South Africa', in B. Roberts, M. Wakivilu and Y.D.Davids (eds.) South African Social Attitudes: The 2nd Report Reflections on the Age of Hope. Pretoria: HSRC Press, pp.167-182.

Medical facilities: Physical inaccessibility can be related to distance, transport options and costs, or road infrastructure. Physical distance and poor roads also make it difficult for mobile clinics and
The paediatric department of the Pietermaritzburg hospital complex is responsible for children's health both in Pietermaritzburg and in the Western half of KwaZulu-Natal. Our point of reference was Greytown Hospital with contact person medical manager Dr Govender and other professionals from the Department of Health and the local clinics. Greytown hospital is a district hospital with 234 beds in the Umzinyathi health district. The hospital serves mainly the rural and semi urban population and provides a 24-hour inpatient/outpatient emergency service, a 24-hour laboratory, x-ray and blood bank facility. The department of health consisting of KwaZulu-Natal workers was an integral part of the collaboration on the spot, with HIV testing facility, TB testing, an adult clinic, an eye clinic.

Possibly a new Collaboration: Collaboration refers to relationships in which two or more independent parties voluntarily decide to work together to address a common purpose. Collaborative arrangements can take many forms: from informal, nonbinding agreements on topics of mutual interest to formal alliances that entail the creation of new organizational entities, substantial investments, and long-term commitments.
This year we were visited by a representative of The Ukwanda Centre for Rural Health, Yana Muller and a representative of the Holland Stellenbosch Foundation, Maarten Schurer.
The purpose of their visit was to get acquainted with MCC and the carrousel methodology and to explore the possibility of a future cooperation between their organizations, MCC and the Mamas.

The medical checks were performed on five days at five different locations.
Program:
Day 1: Potspruit
Day 2: Izingane Zethu Centre (Greytown)
Day 3: Muden- Ntanyana
Day 4: Muden- Elangei
Day 5: Thulini

Table 1: Number of checked children per day and geographical location

Check locations	23-09-19	24-09-19	25-09-19	26-09-19	27-09-19	Total
Izingane Zethu Centre	0	119	0	0	0	119
Muden-Elangeni	0	0	0	210	0	210
Muden-Ntanyana	0	0	211	107	0	318
Potspruit	113	0	0	0	0	113
Thulini	0	0	0	0	88	88
Total	**113**	**119**	**211**	**317**	**88**	**848**

Table 2: Summary of checked children per geographical location, age and gender

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
Age	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<=1 year	91	11%	7	6%	14	7%	37	12%	15	13%	18	20%
>1 and<5 years	187	22%	26	22%	45	21%	63	20%	24	21%	29	33%
<5 years	278	33%	33	28%	59	28%	100	31%	39	35%	47	53%
>=5 and <=10 years	428	50%	63	53%	118	56%	158	50%	56	50%	33	38%
>10 years	142	17%	23	19%	33	16%	60	19%	18	16%	8	9%
Gender												
Boy	402	47%	54	45%	94	45%	157	49%	53	47%	44	50%
Girl	445	52%	64	54%	116	55%	161	51%	60	53%	44	50%

We were thankful to carry out the medical checks in designated areas such in Potspruit Primary in Sgedlane, Izingane centre in Greytown, the Elementary school of Muden-Elangeni, Muden-Ntanyana and Thulini.

At the different locations we checked children who were included in the LETCEE program and other children from the villages.

4. Specific diagnoses

4.1. Growth abnormality and malnutrition

Undernutrition has long been considered a consequence and cause of poor human health, development, and achievement throughout life. There are severe forms of malnutrition, characterized by classical clinical signs such as extreme thinness or oedematous extremities and hair signs. More prevalent are the hidden forms of undernourishment that can stunt child growth and development and impair the immune system[2]. It is reported that over one-third of child deaths in South-Africa are due to undernutrition, mostly from increased severity of disease[3].

The following definitions categorize the different types of malnutrition:

- Underweight = weight for age at or under the third percentile of the reference population (WHO growth curves), only children up to 10 years old. This is an indicator of malnutrition or weight loss because of disease.
- Stunting = height for age at or under the third percentile of the reference population, (WHO growth curves), only children up to 19 years of age. This is an indicator of chronic malnutrition.
- Wasting = weight for height at or under the third percentile of the reference population (WHO growth curves), only children up to 120 cm in height. This is an indicator of acute malnutrition.

UNICEF distinguishes between the immediate, underlying and basic causes of malnutrition. Immediate causes of malnutrition include inadequate dietary intake and illness. This can lead to a potentially vicious cycle of illness and malnutrition, where malnutrition impairs children's immunity leading to recurrent bouts of illness, which further undermine children's nutritional status. Underlying causes include household food insecurity, inadequate maternal care, poor access to services and unhealthy living environments, which in turn are driven by the unequal distribution of resources in society.

In the area surrounding Greytown which we have visited for our medical mission, 3% of the children was classified as underweight. Sixteen percent of the children suffered from stunting and 1% suffered from wasting. If we look at children under five specifically (high risk group), we see that 5% of children is underweight, 30% is stunting and 2% is wasting.

All the children who could not be grouped in one of the WHO definitions because of the age limitations as noted above, were categorized as 'unknown' when analysing the data.

The double burden of malnutrition: there is a worrying increase in obesity and obesity-related diseases in South Africa. The double burden of malnutrition is characterized by the coexistence of undernutrition along with overweight and obesity. This was addressed in last year's medical report. Paediatric obesity and stunting are both risk factors for metabolic

[2] Merson, Global Health Disease Programs, Systems and Policies, page 243

[3] UNICEF 2009 State of the World's Children report

syndrome and diseases in adulthood and are therefore relevant additional data for missions conducted in the future.

Undernutrition in South African children younger than ten years old has dropped significantly since 2005 with the exception of the age group 0-3 years. In the group aged 0-3 years, the prevalence of stunting was 26.9% for boys an 25.9% for girls in 2012. In the group aged 7-9 the percentage of stunting for boys was 10% with 8.9% for girls. This shows the vulnerability of the younger group of children.

Comparing our own data, we can also conclude that these younger age groups, especially the ones younger than 1 year old, are the most vulnerable to be underweight, stunting or wasting. And thus the 1-5 -year old children should be the primary target group for feeding programs. There were big differences in malnutrition in the communities we visited. The prevalence of underweight was the highest in Potspruit , with 8 % (18% < five year) compare with Muden- Ntanyana where it was 1%. The prevalence of stunting in Izingane Zethu centre, Muden-Elangeni, Muden-Ntanyana, Potspruit, Thulini for the age under five was respectively 22%, 20%, 34%, 38%, 32%. Particular in Potspruit we saw 3 % of the children wasting; of which 13% was <one year and 8% under the age of five years.

Table 3: Prevalence of weight/age at or under P3 (underweight) per geographical location by age and gender

	Total		**Izingane Zethu Centre**		**Muden-Elangeni**		**Muden-Ntanyana**		**Potspruit**		**Thulini**	
	848		**Total= 119**		**Total= 210**		**Total= 318**		**Total= 113**		**Total= 88**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Underweight	26	3%	5	4%	6	3%	3	1%	9	8%	3	3%
No underweight	680	80%	90	76%	171	81%	257	81%	85	75%	77	88%
Unknown	142	17%	24	20%	33	16%	58	18%	19	17%	8	9%
Underweight children per age												
<=1 year	5	6%	0	0%	0	0%	0	0%	3	20%	2	11%
>1 and <5 years	8	4%	1	4%	3	7%	0	0%	4	17%	0	0%
<5 years	13	5%	1	3%	3	5%	0	0%	7	18%	2	4%
>=5 and <=10 years	13	3%	4	6%	3	3%	3	2%	2	4%	1	3%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Underweight children per gender												
Boy	16	5%	4	9%	1	1%	3	2%	5	11%	3	8%
Girl	10	3%	1	2%	5	5%	0	0%	4	8%	0	0%

Table 4: Prevalence of length/age at or under P3 (stunting) per geographical location by age and gender

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
Stunting	132	16%	14	12%	19	9%	50	16%	28	25%	21	24%
No stunting	710	84%	103	87%	191	91%	264	83%	85	75%	67	76%
Unknown	6	1%	2	2%	0	0%	4	1%	0	0%	0	0%
Stunting children per age												
<=1 year	34	37%	1	14%	5	36%	12	32%	7	47%	9	50%
>1 and <5 years	49	26%	6	24%	7	16%	22	35%	8	33%	6	21%
<5 years	83	30%	7	22%	12	20%	34	34%	15	38%	15	32%
>=5 and <=10 years	36	8%	5	8%	6	5%	11	7%	10	18%	4	12%
>10 years	13	9%	2	9%	1	3%	5	8%	3	17%	2	25%
Stunting children per gender												
Boy	61	15%	5	9%	10	11%	24	15%	10	19%	12	27%
Girl	71	16%	9	14%	9	8%	26	16%	18	30%	9	20%

Table 5: Prevalence of weight/length at or under P3 (wasting) per geographical location by age and gender

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
Wasting	5	1%	0	0%	0	0%	2	1%	3	3%	0	0%
No wasting	514	61%	63	53%	121	58%	184	58%	80	71%	66	75%
Unknown	329	39%	56	47%	89	42%	132	42%	30	27%	22	25%
Wasting children per age												
<=1 year	2	2%	0	0%	0	0%	0	0%	2	13%	0	0%
>1 and<5 years	3	2%	0	0%	0	0%	2	3%	1	4%	0	0%
<5 years	5	2%	0	0%	0	0%	2	2%	3	8%	0	0%
>=5 and <=10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Wasting children per gender												
Boy	2	1%	0	0%	0	0%	0	0%	2	5%	0	0%
Girl	3	1%	0	0%	0	0%	2	2%	1	2%	0	0%

This year there was no nutritionist of the Department of Health of Kwazulu-Natal along with our medical camp to simultaneously monitoring the children under 5 years of age and protein supplementation when malnourished was not given. These children were asked to revisit the mobile clinic for further follow-up.

Unsafe water and inadequate sanitation and hygiene are significant contributors to the 1.8 million deaths caused by diarrhoea every year. For children under five years of age, this burden is greater than that covered by HIV and malaria combined. Lack of water and chronic thirst in schoolchildren have negative effects on their concentration in school and on further academic achievements, often causing headaches.

Suggestions:

- MCC advises to execute the strategy to ensure appropriate nutrition during the first 3 years of a child's life. (Nurturing Care Framework)
- MCC advises that children drink at least 4 cups of water each day. We advise LETCEE to play a counselling role for parents and children.
- MCC advises to refer to a nutritionist if in the follow-up the child is still malnourished.
- Strengthen awareness for the paradox of double burden of malnutrition in rural South Africa.

4.2. Anaemia

Iron is essential in the body for oxygen transportation and cellular respiration - functions that are especially critical in red cells, brain and muscle. Iron deficiency is considered the most common micronutrient deficiency in the world; anaemia, characterized by abnormally low blood haemoglobin concentration, is its major clinical manifestation. In addition to iron deficiency, other micronutrient deficiencies (such as folate, vitamin B12 and vitamin A), chronic inflammation and inherited disorders of haemoglobin structure can all cause anaemia (WHO/UNICEF/UNU 2001)[4].

Iron deficiency, a common form of nutritional deficiency during childhood, results from sustained negative iron balance, which is caused by inadequate dietary intake, absorption and/or utilization of iron, increased iron requirements during the growth period, or blood loss due to parasitic infections such as malaria, soil-transmitted helminth infestations and schistosomiasis. In later stages of iron depletion, the haemoglobin concentration decreases, resulting in anaemia.

The South African National Health and Nutrition Survey, 2012 (Sanhanes-1 study)[5], is a survey about the national health and nutritional status of the South African nation. This study states that it is estimated that 600 million preschool- and school-age children worldwide are anaemic and it is assumed that at least half of these cases are attributable to iron deficiency (WHO/ CDC 2008). Current rates of anaemia among preschool aged children in South-Africa are 24%[4]. In the South African National Health and Nutrition Survey, 2012 (Sanhanes-1 study) the prevalence of anaemia was 10.7% (children under five years of age) (see figure 3.8.2.1 from the Sahanes-1 study). The huge decrease is correlated to the beneficial effect of the Food Fortification Program. Overall the prevalence of anaemia seems to drop, although the recent publication in the South- African Journal for Child Health,

[4] WHO. 2008. Worldwide Prevalence of Anemia 1993-2005: WHO Global Database on Anemia

[5] The South African National Health and Nutrition Survey, 2012 (SANHANES-1 study)

Persistent and new-onset anaemia in children aged 6 - 8 years from KwaZulu-Natal Province, South Africa, suggests the prevalence of anaemia might be higher. The baseline anaemia prevalence in this article was 56.9% and at follow-up the anaemia prevalence was 41.9%.

In South Africa no national policy has been implemented so far to provide iron supplements to pregnant women or young children. While iron deficiency is frequently the primary factor contributing to anaemia, it is important to recognize that the control of anaemia requires a multi-faceted approach. In addition to iron deficiency, infectious diseases such as worm infections, other chronic infections, particularly HIV-AIDS and tuberculosis, as well as other nutritional deficiencies are risk factors for anaemia, and this as well can be a side effect of ART medication in HIV positive children.

Anaemia is always multifactorial in cause. Household factors are important when considering malnutrition and anaemia. If we look at the baseline menu provided in KwaZulu-Natal a few observations can be made:

- The diet is rich in carbohydrates (high caloric food), such as putu.
- Fat is added.
- The vegetables are mostly roots of plants and cabbage, spinach being the exception.

The diagnosis anaemia was made in 308 of the 848 children (36%) eligible for testing their blood. Of the children under five, 45% was anaemic. Cut-off values were determined based on age and height of the place where the children lived, using the World Health Organization cut-off values for anaemia.

In five children (1%) the Hb level was lower than 5.0 mmol/l after a second confirming measurement, marking a more severe form of anaemia and suggesting possible underlying pathologies other than iron deficiency. Depending on the age and presence of growth abnormalities, children were given iron supplements or multivitamins for at least two months. Children with severe anaemia (<5.0 mmol/l) were treated with supplementation as well as referred for further diagnostics.

In the table below percentages of anaemia on the different locations are displayed.

Table 6: Prevalence of anaemia per geographical location by age and gender

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
Anaemia	308	36%	31	26%	77	37%	114	36%	43	38%	43	49%
No anaemia	514	61%	81	68%	118	56%	202	64%	70	62%	43	49%
Unknown	26	3%	7	6%	15	7%	2	1%	0	0%	2	2%
Hb <5,0 mmol	5	1%	0	0%	2	1%	2	1%	1	1%	0	0%
Anaemia per age												
<=1 year	27	30%	1	14%	2	14%	11	30%	6	40%	7	39%
>1 and <5 years	99	53%	9	35%	25	56%	33	52%	15	63%	17	59%
<5 years	126	45%	10	30%	27	46%	44	44%	21	54%	24	51%
>=5 and <=10 years	148	35%	17	27%	44	37%	56	35%	17	30%	14	42%
>10 years	34	24%	4	17%	6	18%	14	23%	5	28%	5	63%
Anaemia per gender												
Boy	142	35%	14	26%	32	34%	54	34%	21	40%	21	48%
Girl	166	37%	17	27%	45	39%	60	37%	22	37%	22	50%

MCC complements LETCEE on providing nutritional meals on a daily basis for children in Izingane Zethu Centre

Suggestions:

- MCC advises a diet rich in fruits and vegetables, greater diversity, and less added sugars.
- MCC supports the general guidelines: mothers known to be HIV infected should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter and continue breastfeeding for the first 12 months of life. Breastfeeding should continue until the age of 2 years and should be supported by ART adherence strategies.

4.3. Worm infections

Worm infections are one of the major health problems confronting millions of school-aged children. These parasites consume nutrients from the children they infect, thus aggravating malnutrition and retarding physical development. They also destroy the tissues and organs in which they live. They cause abdominal pain, diarrhoea, intestinal obstruction, anaemia, ulcers and various other health problems.

Heavy, prolonged infection adversely affects growth, development and educational achievement, and significantly increases childhood morbidity. Parasite infections produce different manifestations according to the site, intensity and length of infection. The host response also influences the clinical course of the infection. In general, children experience

the heaviest worm burden, and persistent infection is common in low- and middle-income settings.

The three main types of common intestinal worms that infect humans are large intestinal roundworm (*Ascaris lumbricoides*), hookworm *(Ancylostoma duodenale and Necator americanus*) and whipworm (*Trichuris trichuira*)[6]. The highest rates of roundworm, hookworm and whipworm infections are often in children between age 5 and 15.

The South-African Department of Health has launched a national deworming program in 2016[7]. The department said the goal was to attain a minimum target of regular administration of deworming medication to at least 75% of school-aged children and up to 100% of those at risk of morbidity. South- Africa has a program in which children are offered preventive anti-worm medication. In our checked population, 30% of the children (258/848) had received anti-worm treatment in the last half year. This is no improvement compared to 2018. In 2018 also 30% (223/737) received anti-worm treatment in the last half year. Several communities score below the average percentage. In Izingane Center , Greytown the percentage of deworming treatment was 18 %, in Muden-Elangeni 19% and Potspruit 12 %. The average percentage of acute worm infections was 4% (38/848). All of the children who had not received anti-worm treatment were given one dose of albendazole 500 mg above the age of five and 250 mg for the age of 2-5 years. Children with severe acute worm infections were treated with albendazole during three consecutive days.

Table 7: Prevalence preventive anti-worm treatment in the last half-year per geographical location by age and gender

	Total		**Izingane Zethu Centre**		**Muden-Elangeni**		**Muden-Ntanyana**		**Potspruit**		**Thulini**	
	848		**Total= 119**		**Total= 210**		**Total= 318**		**Total= 113**		**Total= 88**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Anti-worm	258	30%	22	18%	39	19%	143	45%	14	12%	40	45%
No anti-worm	585	69%	96	81%	171	81%	171	54%	99	88%	48	55%
Anti-worm per age												
<=1 year	24	26%	1	14%	6	43%	7	19%	4	27%	6	33%
>1 and <5 years	65	35%	8	31%	17	38%	23	37%	5	21%	12	41%
<5 years	89	32%	9	27%	23	39%	30	30%	9	23%	18	38%
>=5 and <=10 years	133	31%	12	19%	12	10%	84	53%	5	9%	20	61%
>10 years	36	25%	1	4%	4	12%	29	48%	0	0%	2	25%

Suggestion

● MCC advices to roll out a *community delivery strategy* of anti-worm medication delivered by trained teachers and other school personnel: twice a year one tablet of mebendazole 500 mg for children above 5 years old and half of the tablet (500 mg) in the group of children 2-5 year.

[6] http://www.unicef.org/eapro/Prevention_of_intestinal_worm_infections.pdf
[7] http://allafrica.com/stories/201603010156.html

4.4. Respiratory problems

Acute respiratory infections comprise infections of various parts of the respiratory tract, ranging from mild viral and bacterial infections of the upper respiratory tract (e.g. common cold), to life-threatening infections of the lower respiratory tract. Lower respiratory tract infections are the cause of high morbidity and of mortality. Pneumonias in particular are typically one of the leading causes of death among infants and children younger than 5 years[8]. Risk factors for Acute Respiratory Infections (ARI) are poverty, crowding, lack of parental education, malnutrition, low birth weight and lack of breastfeeding.

In the areas surrounding and including Greytown, we saw that 7 out of 848 (<1%) suffered from a clinically evident pneumonia. Depending on their medical history and previous treatment, they were treated with amoxicillin, another type of antibiotics (amoxicillin/clavulanic acid) or referred for a chest X-ray under the suspicion of tuberculosis. A total of 45 children (5%) suffered from upper respiratory infections (otitis media, otitis externa or other upper airway tract infections). Three children showed dyspnoea because of asthma and were treated with nebulization of salbutamol. Although there were many children seen with common colds (data not recorded), the amount of serious respiratory problems was surprisingly low as in the previous years we checked these areas. Along our medical camp we were grateful there was a TB counsellor of the Department of Health of Kwazulu-Natal. We were not always informed about their diagnosis involving TB.

KwaZulu-Natal has the highest tuberculosis (TB) burden in the country. A number of 9691 cases of TB in children under five years were reported in 2011. TB CARE II South Africa was launched in October 2014 to support the South Africa National Department of Health (NDOH) with TB prevention and control efforts, working closely with national and provincial

[8] Graham, 1990 - Merson, Global Health Disease Programs, Systems and Policies, page 191

partners to close gaps in areas identified, and to further develop sustainable systems which can carry forward long-term improvements in TB and drug- resistant (DR) TB diagnosis, care, and treatment services.

4.5. Cardiac problems

Congenital heart disease is the number 8 leading cause of under-five child mortality in South-Africa[9], with the ventricular septal defect as the most prevalent type. In South-Africa, rheumatic heart disease is the leading acquired heart disease among children. Acute Rheumatic Fever is caused by an untreated sore 'strep' throat, which may lead to repeated attacks affecting the joints (arthritis), skin (rash) and heart (myocarditis). After attacks of untreated ARF, chronic heart valve damage (RHD) may develop. In the instance of RHD, open-heart surgery is necessary to repair or replace heart valves[10] .

The medical carrousel included a cardiac examination. There were nine children that were suspected of having a pathological murmur and were referred to a specialist for an ultrasound and further diagnostic tests. Five children were suspected of a physiological heart murmur and were not referred for an ultrasound, some of them also had an anaemia and will be seen for follow-up.

4.6.HIV

South Africa is currently the country with the largest number of people living with HIV in the world. Many children are HIV positive or have become ill and died due to AIDS. The majority of children are infected before and during the birth process and some later through breastfeeding. Children may also become infected through sexual intercourse, including sexual abuse. The prevention of mother-to- child transmission (PMTCT) has been very effective.

In a 2008 national household survey conducted by the Human Sciences Research Council, the prevalence of HIV measured in children aged 2 – 14 was 2.5% (95% CI:1.9 – 3.5%).

HIV prevalence in KwaZulu-Natal is among the highest in the world: 38.7% of the population is infected.

Despite this significant progress, the number of children becoming newly infected with HIV remains unacceptably high. About 150 000 children became infected with HIV in 2015, down from 490 000 in 2000[11].

The HIV counsellor of the Department of Health of Kwazulu-Natal who joined in our medical camp has seen 25 patients with HIV of which 19 where known cases. Some on treatment, some have defaulted. New cases were only six. All enrolled in an ART treatment program.

[9] http://www.unicef.org/southafrica/SAF_publications_mrc.pdf
[10] http://www.pcssa.org/faq/
[11] Children and HIV: fact sheet, UNAIDS, 2016

4.7. Skin disease

An outbreak of scabies and other related skin diseases has attacked hundreds of children in the rural areas in the Greytown District from last year onwards. During our checks September 2019 we saw 88 patients with scabies (10%) Despite of measurements taken by the Department of Health, including treatment with potassium permanganate in rinsing water, scabies was still a problem in certain communities. Scabies cases were often complicated by impetigo. Scabies was treated with topical or oral therapies on the spot. Topical treatments included benzyl benzoate lotion and permethrin soap. Ivermectin was used as an oral therapy. Ivermectin is expensive and unavailable in Greytown and was imported from the Netherlands to be used for the older children.

Prolonged surveillance is required for the eradication of outbreaks of scabies. Blankets and clothing do appear to be less important in transmission than first thought, and there is no conclusive evidence to suggest that washing of clothing and blankets is necessary for the prevention of spread. However, when treated for scabies, children and their caretakers received important information on hygiene measures and were advised to put their clothes in a sealed of bag and leave it in the sun for at least 2 days. We also donated many additional clothing and hats to vulnerable affected families, since many of them don't have a second set of clothes.

In respect to other skin diseases we saw 55 children (6%) with variable presentations of dermatomycoses, mainly tinea capitis. Tinea capitis in African countries is highly prevalent and linked to social stigma. Besides overcrowding, ringworm often spreads through the use of infected objects like dirty razor blades when shaving the heads of the children. The presenting signs include scaling of the scalp and is often accompanied by secondary bacterial infection(s). Follicles may be seen discharging pus. Antifungal cream and Selsun shampoo were given for severe dermatomycosis. Hydrocortisone cream was given for different forms of dermatitis.

We encountered a moderate range of different kind of wounds and skin disorders, mainly impetigo. Impetigo is a contagious superficial bacterial infection manifesting on the face and extremities with lesions that progress from papules to vesicles, pustules, and crusts. The cases were treated by antibacterial creams and/or oral antibiotics in severe cases. Twenty-three children (3%) had impetigo. Several underlying factors in the environment of the children such as lack of running water, overcrowding, poor personal hygiene, minor skin trauma or eczema are the main predisposing factors for these bacterial skin infections. A high percentage of the number of impetigo cases was secondary to the underlying scabies outbreak. Although the scabies outbreak was still ongoing, this year we saw less cases with serious extended lesions or severe secondary infections. But still 3% impetigo of the total number of children affected compared to 2% last year, which is not an improvement.

Handwashing is important for reducing spread among children, and other preventive measures employed in reducing the spread of staphylococci/streptococci may also be helpful. A practical way to reduce recurrence rates of Staphylococcal Furunculosis is treatment with Betadine solution in water. However, the iodine needs to be rinsed off

completely not to affect the thyroid function. Children who are iron deficient have higher percentages of boils and vitamin C has also been advocated to improve deficient neutrophil function in prevention of boils.

4.8. Dental health

Dental caries is still a major public health problem in South Africa. Dental caries is influenced by multiple factors such as diet, socio-economic status and the availability of oral health services. Of the 848 children that were checked, this widespread condition affected 186 children (22%). On top of that 103 (12%) children were suffering from caries with pain. Only the children with inevitable dental pain and discomfort were referred to the dental mobile clinic, which sadly and logistically was not part of our medical checks week this year. As part of our medical carousel however, the children got education on dental hygiene and all were provided with a colourful tooth brush.

Suggestions:

- MCC encourages the dental mobile clinic to regularly diagnose and treat children for dental healthcare.
- Gradual Shift from a more curative to a more preventative approach for an improvement in dental service delivery.
- Upscaling health promotion concerning dental health in all schools and day-care centres.
- Awareness in the community between the link of severe caries with high sugary sweets, incorrect diet, source of water and fluoride content.
- Affordability of toothbrushes and fluoridated toothpaste.

Table 8: Diseases prevalence among all children per geographical location

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
Underweight	26	3%	5	4%	6	3%	3	1%	9	8%	3	3%
Stunting	132	16%	14	12%	19	9%	50	16%	28	25%	21	24%
Wasting	5	1%	0	0%	0	0%	2	1%	3	3%	0	0%
Anaemia	308	36%	31	26%	77	37%	114	36%	43	38%	43	49%
HIV pos.	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%
vitamin deficit (clinical signs)	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
syndrome	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
pneumonia (clinical)	7	1%	2	2%	0	0%	0	0%	5	4%	0	0%
pneumonia (X-ray confirmed)	1	0%	0	0%	0	0%	0	0%	1	1%	0	0%
tuberculosis (clinical)	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%
bronchitis	5	1%	0	0%	2	1%	0	0%	1	1%	2	2%
BHR/asthma	3	0%	0	0%	0	0%	2	1%	1	1%	0	0%
diarrhoea without dehydration	7	1%	3	3%	0	0%	2	1%	2	2%	0	0%
constipation	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
active worm infection	38	4%	4	3%	6	3%	14	4%	8	7%	6	7%
active tapeworm	2	0%	0	0%	1	0%	1	0%	0	0%	0	0%
Acute otitis media	9	1%	0	0%	7	3%	0	0%	0	0%	2	2%
otitis media with effusion	6	1%	1	1%	4	2%	1	0%	0	0%	0	0%
otitis externa	6	1%	2	2%	1	0%	3	1%	0	0%	0	0%
sinusitis	3	0%	0	0%	0	0%	1	0%	0	0%	2	2%
hearing impairment	1	0%	0	0%	1	0%	0	0%	0	0%	0	0%
other	21	2%	1	1%	5	2%	8	3%	6	5%	1	1%
cariës n.o.s.	186	22%	34	29%	50	24%	67	21%	24	21%	11	13%
toothpain n.o.s.	7	1%	2	2%	0	0%	4	1%	1	1%	0	0%
fluorosis	32	4%	1	1%	9	4%	16	5%	4	4%	2	2%
caries with pain	103	12%	12	10%	27	13%	48	15%	8	7%	8	9%
wounds	2	0%	0	0%	2	1%	0	0%	0	0%	0	0%
eczema	9	1%	1	1%	4	2%	3	1%	1	1%	0	0%
dermatomycosis	55	6%	6	5%	17	8%	23	7%	3	3%	6	7%
Impetigo/furunculosis	23	3%	1	1%	8	4%	7	2%	3	3%	4	5%
scabies	88	10%	7	6%	29	14%	33	10%	17	15%	2	2%
wounds infected,	5	1%	3	3%	0	0%	2	1%	0	0%	0	0%
other (psoriasis et al.)	3	0%	0	0%	2	1%	1	0%	0	0%	0	0%
Psycho-motoric retardation	3	0%	1	1%	0	0%	0	0%	0	0%	2	2%
migraine/headache	3	0%	0	0%	0	0%	2	1%	0	0%	1	1%
physiological murmur	5	1%	0	0%	2	1%	2	1%	0	0%	1	1%
pathological murmur (suspected)	9	1%	0	0%	3	1%	4	1%	0	0%	2	2%
refractory problem	4	0%	0	0%	0	0%	3	1%	1	1%	0	0%
strabismus	2	0%	1	1%	0	0%	0	0%	1	1%	0	0%
keratoconjunctivitis	2	0%	0	0%	1	0%	1	0%	0	0%	0	0%
amblyopia	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
menorrhagia	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
cryptorchisme	3	0%	0	0%	2	1%	1	0%	0	0%	0	0%
urinary infection	1	0%	0	0%	1	0%	0	0%	0	0%	0	0%
hernia(umbilical et al.)	2	0%	0	0%	0	0%	1	0%	1	1%	0	0%

5. Nurturing Care Framework

'A FRAMEWORK FOR HELPING CHILDREN SURVIVE AND THRIVE TO TRANSFORM HEALTH AND HUMAN POTENTIAL (WHO)'

The Nurturing care framework is adopted as one of the first countries by South Africa in 2018. The new Nurturing Care Framework draws on state-of-the-art evidence on how early childhood development unfolds, to set out the most effective policies and services that will help parents and caregivers provide nurturing care for children. It is designed to serve as a roadmap for action, helping mobilize a coalition of parents and caregivers, national governments, civil society groups, academics, the United Nations, the private sector, educational institutions and service providers to ensure that every baby gets the best start in life. It outlines:

- Why efforts to improve health, well-being and human capital must begin in the earliest years, from pregnancy to age 3.
- The major threats to early childhood development.

- How nurturing care protects young children from the worst effects of adversity and promotes physical, emotional and cognitive development.
- What caregivers need in order to provide nurturing care for young children[12].

5.1. Responsive care giving

[12] http://www.who.int/maternal_child_adolescent/child/nurturing-care-framework/en/

It is important that the children have secure emotional relationships with caregivers and that care- seeking for childhood illness happens timely. Therefore, MCC stresses the presence of caregivers accompanying the child to the medical check -up. Almost all the children had a care taker present on the day of the medical check. There were a lot of caretakers who had more than five children with them and often they did not know a lot to tell about the children. We are pleased to see that there is a significant improvement compared to last year. When there was no caretaker around, some medication was distributed by the regional fieldworker to the specific families. A high number of grandparents or extended family members were more commonly involved in the care of young children bringing them to the medical checks. In South Africa work migration, absent fatherhood and high HIV prevalence among younger-to-middle aged adults has led to a heavy burden on grandparents, especially grandmothers, to care for their grandchildren.

Table 9: Child with care taker at the day of the check

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
No	3	0%	0	0%	0	0%	0	0%	2	2%	1	1%
Yes	844	100%	119	100%	210	100%	317	100%	111	98%	87	99%
Teacher	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

5.2. Security and safety of children

Children should not experience neglect, violence, displacement or conflict. South Africa's ongoing violence against children however paints a bleak picture and emphasizes the findings by the first national prevalence study conducted in 2016 and highlighted by the Children's Institute Out of Harm's Way report, which estimates that up to 34% of the country's children are victims of sexual violence and physical abuse before they reach the age of 18.

The study further states that in the Western Cape and Mpumalanga alone, over half of the children reported a lifetime prevalence of physical abuse by caregivers, teachers or relatives.

Violence is interlinked and cumulative in nature; children who experience or witness violence are at increased risk of revictimization or perpetration later in life and when they become parents themselves they often lack the ability to bond with their own children and are more inclined to use violence. Furthermore, violence against children has a severe impact on SA's economy. A report by Save the Children: Violence Unwrapped — The Social and Economic Burden of Violence Against Children in South Africa, says that the estimated economic value of disability-adjusted life years lost due to violence against children (including fatal and non-fatal) totalled R202 billion in 2015. This accounted for 3,3% of SA's GDP in 2015.

Only one child was referred to a social worker, a boy with a mentally retardation whose mother was on drugs and was also mentally retarded.

During this year medical checks, the most concerning location in which social problems and medical problems were frequent as consequence of a deplorable circumstances, was Potspruit. In this area 38% was anaemic and, 8% was underweight, 25% was stunted and 3 % was wasted, only 12% of the children received deworming in the last 6 months. Letcee has made a start in 2019 with a helping hand to the closed community, setting up a day care (January 2019) with a feeding program and a community garden started in May of this year. We hope that the new efforts of Letcee will be able to make the same amazing difference as their project in the Coloured Village did last year.

In 2017 we witnessed an amazing progress in physical and emotional health in the former often homely maltreated or abused children in the Coloured Village (Barracks, informal housing), now called Izingane Zethu Centre. More than 125 children had found shelter, food as in free breakfast and lunch, a safe heaven, a caring, loving adult or buddy and a place to play and learn within the wonderful programs of Letcee. At the day of the medical checks it was Heritage Day and the children performed traditional South African and modern dance as thanks for our support. Seeing these children being happy and dancing and healthier was a great joy to our volunteers, exemplifying the difference made by all the tremendous efforts by the professionals from Letcee. This year we have seen no further improvement, 26% of the children were still anaemic, 4% underweight 12% stunted and only 18% of the children received deworming medication. Maybe the latter is a clue to improve apart from the more constitutional problems (social problems, housing etc)

5.3. Children with physical and intellectual disabilities

The overall confirmed prevalence rate for children with disabilities under 10 years in South Africa is 6%. During this year visit we encountered even less handicapped children than in 2018 and 2017 (5 resp. 7 and 14 children). The most prevalent disabilities we saw during the 2019 medical mission were three children with cerebral palsy, one with a seizure disorder

and one with a mentally disability possibly due to a syndrome. The later was an eight-year-old boy whose mother was on drugs and had a mental disability herself. We referred him to a social worker. During our annual visit we did not see children with the syndrome of Down as the year before. We did not seen children with Albinism or with FAS.

Albinism is a condition where a child is unable to produce normal colouring of the skin, hair and eyes due to lack of pigments. Albinism is an inherited, genetic disorder.
Although the extent of violent crimes targeting South Africans with albinism has never reached the levels encountered in other African countries, these vulnerable children need high protection as to the fact that trading in albino body parts sadly still constitutes a lucrative enterprise in crime.

Foetal Alcohol Syndrome (FAS) is thought to be the third highest cause of congenital mental retardation. This syndrome is associated with cranio-facial malformations, growth retardation, abnormalities in the nervous system and organ malformation. Foetal Alcohol effects are preventable simply by women reframing from alcohol during pregnancy. FAS is permanent and irreversible and impairs a child's lifetime ability to function mentally, physically and socially[13].

MCC complements the great efforts of LETCEE and local healthcare workers towards ongoing support and treatment of maltreated and (sexually) abused children by continuous awareness and the enlargement of the staff with an additional social worker.

Suggestions:

- Strengthening efforts in collaboration with local NGO's and national initiatives addressing physical, emotional and sexual abuse.
- Improve data-gathering and screening that would help children with disabilities to go to neighbourhood schools and receive support in inclusive settings from an early age.
- Strengthen partnerships between government and NGO's for better chances for children with disabilities and special needs.
- Stimulate caretakers to bring their children with disabilities to the MCC medical camp
- As MCC we have to discuss whether we also should focus more at learning disabilities in the children we are seen and put standardized questions about school performance in our CRF form.

[13] http://www.fasfacts.org.za/

6. Referrals

During MCC's visit to the rural areas around Greytown a list was made for children needing referral for further diagnosis and/or treatment for suspected pathologies. There was a total of 106 (13%) children who were referred by MCC for follow-up. The largest proportion was for dental referrals, 81 patients (10%) and 25 referrals to be seen by a specialist (3%). Also 75 children are seen by the mobile clinic for follow-up in 4 to 6 weeks (revisits) or for blood-tests after 3 months.

Caregiver compliance with referrals for child health services is essential to child health outcomes and there is a lack of data of referral compliance in the regions in KwaZulu-Natal. In one 2014 South African study in KwaZulu-Natal the overall compliance rate for children with suspected non-acute conditions was 45 percent. Referral compliance was especially low for suspected disorders of vision, hearing and development. Referral compliance was significantly lower for children with younger caregivers, those living in households with low educational attainment and for those with unstable caregiving[14].

Additional studies are in progress to identify other possible contributory factors including: caregiver knowledge and attitudes about referrals, environmental factors (e.g. financial and geographical accessibility) and health system factors (e.g. service availability, health worker availability and health system responsiveness).

This year we were pleased to see that referral process was optimised. On monthly basis each area we had visit during our Checks are now visit by a mobile clinic. The mobile clinic receive the dates for each area and call parents of those children to attend the mobile clinic for follow-up (revisits and blood-tests). Every child referred to the hospital received a letter for the referred doctor and contact details were confirmed and were noted in a separate list on the spot to be followed by one of the Letcee members. In the coming months we will exchange information by e-mail on the follow-up and the outcomes of the children being referred.

Table 10: Follow-up of all children per geographical location

	Total		**Izingane Zethu Centre**		**Muden-Elangeni**		**Muden-Ntanyana**		**Potspruit**		**Thulini**	
	848		**Total= 119**		**Total= 210**		**Total= 318**		**Total= 113**		**Total= 88**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Dentist	81	10%	7	6%	21	10%	42	13%	2	2%	9	10%
Specialist in hospital	25	3%	3	3%	3	1%	10	3%	5	4%	4	5%
Revisit	62	7%	7	6%	16	8%	30	9%	1	1%	8	9%
Blood-test after 3 months	13	2%	2	2%	4	2%	3	1%	3	3%	1	1%
Other…	9	1%	4	3%	1	0%	4	1%	0	0%	0	0%

[14] https://www.unicef.org/southafrica/SAF_resources_sitandisability.pdf as a practical guide and www.nurturing-care.org as a valuable guide.

Suggestions:

• Active collaboration with the Department of Health and Letcee is essential in developing interventions to strengthen referral processes as a means to improve the quality of life for disadvantaged and vulnerable children.

7.Treatment

Table 11: Treatment among all children per geographical location

	Total		Izingane Zethu Centre		Muden-Elangeni		Muden-Ntanyana		Potspruit		Thulini	
	848		Total= 119		Total= 210		Total= 318		Total= 113		Total= 88	
	N	%	n	%	n	%	n	%	n	%	n	%
ferro	34	4%	3	3%	6	3%	17	5%	2	2%	6	7%
mother iron	12	1%	1	1%	2	1%	6	2%	2	2%	1	1%
multivitamins	656	77%	82	69%	165	79%	241	76%	93	82%	75	85%
anti-worm	451	53%	84	71%	137	65%	122	38%	76	67%	32	36%
acute worm	93	11%	5	4%	27	13%	30	9%	21	19%	10	11%
anti-scabies	9	1%	3	3%	2	1%	2	1%	2	2%	0	0%
Niclosamide	1	0%	0	0%	1	0%	0	0%	0	0%	0	0%
Amoxicillin	27	3%	2	2%	13	6%	0	0%	8	7%	4	5%
Augmentin	20	2%	3	3%	5	2%	7	2%	2	2%	3	3%
Second line antibiotics	2	0%	0	0%	0	0%	2	1%	0	0%	0	0%
co-trimoxazole	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%
paracetamol	2	0%	0	0%	0	0%	2	1%	0	0%	0	0%
ORS	2	0%	1	1%	0	0%	0	0%	1	1%	0	0%
eardrops	7	1%	1	1%	2	1%	4	1%	0	0%	0	0%
Mupirocin=Bactroban	12	1%	1	1%	3	1%	5	2%	2	2%	1	1%
hydrocortisone cream	28	3%	4	3%	8	4%	10	3%	4	4%	2	2%
daktarin cream	50	6%	4	3%	16	8%	22	7%	2	2%	6	7%
neutral cream	3	0%	0	0%	0	0%	3	1%	0	0%	0	0%
iodine	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
griseofulvin	5	1%	0	0%	4	2%	0	0%	1	1%	0	0%
eyedrops	6	1%	3	3%	0	0%	3	1%	0	0%	0	0%

8. Committing to action

Concrete commitments and collective action are needed to implement the strategic actions in supporting nurturing care and realize the Nurturing Care Framework's vision in the Greytown area.

Here are *five recommended ways* for social workers and regional field workers within Letcee to help support nurturing care.

• Check identity citizenship for every child

- Empower families and children in disadvantaged circumstances

- Ensure there is a continuum of care
- Protect children from maltreatment and family dissolution
- Integrate children who have additional needs and reach out to the most vulnerable

Our medical findings and the mentioned suggestions/recommendations above, should be underpinning the five components in the nurturing care framework. Necessary interventions can be focused on caregiver capabilities, empowerment of communities, supporting services and/or enabling policies.

The table below lists the outcomes of the different components of nurturing care. Although it will be a long road to travel to get them all accomplished in the bigger picture, we can make continuous small steps in the right direction with joined forces.

Outcomes (Components of nurturing care)				
Good health	**Adequate nutrition**	**Responsive caregiving**	**Opportunities for early learning**	**Security and safety**
• Caregivers are mentally and physically healthy • Antenatal, childbirth and postnatal care are of good quality • Mothers and children are immunized • Care-seeking for childhood illness is timely • Childhood illness is appropriately managed	• Caregivers' nutritional status is adequate • Breastfeeding is exclusive and initiated early • Complementary feeding and child nutrition are appropriate • Micronutrient supplementation is given as needed • Childhood malnutrition is managed	• The child has secure emotional relations with caregivers • Caregivers are sensitive and responsive to the child's cues • Caregiver-child interactions are enjoyable and stimulating • Communication is bi-directional	• Communication is language-rich • There are opportunities for age-appropriate play and early learning at home and in the community	• Families and children live in clean and safe environments • Families and children practise good hygiene • Children experience supportive discipline • Children do not experience neglect, violence, displacement or conflict

8.1. Good Health

- MCC advices to monitor the *community delivery strategy* of anti-worm medication delivered by the Department of Health.
- Active co-operation of the Department of Health and Letcee is essential in developing interventions to strengthen referral processes as a means to improve the quality of life for disadvantaged and vulnerable children.
- MCC encourages the dental mobile clinic to be on the spot at the same days we do our medical checks for an efficient referral system and pain treatment.
- Upscaling health promotion concerning dental health in all schools and day-care centres.
- Awareness in the community between the link of severe caries with high sugary sweets, incorrect diet, source of water and fluoride content.

8.2. Adequate Nutrition

- MCC advises adequate nutrition during the first 5 years of a child's life (Nurturing Care framework).

- MCC advises a diet rich in fruits and vegetables, greater diversity, and less added sugars in the daily diet and three meals a day with a minimum of 3 cups of water a day.
- MCC supports the general guidelines: mothers known to be HIV infected should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter and continue breastfeeding for the first 12 months of life. Breastfeeding should continue until the age of 2 years and should be supported by ART adherence strategies.
- Strengthen awareness for the paradox of double burden of malnutrition in Kwazulu-Natal.

8.3. Responsive care giving

- No child shall be medically checked without a dedicated caregiver.
- A minimum of 75 percent of all the referrals should have had adequate follow-up by 3 up to a maximum of 6 months after the MCC visit.

8.4. Opportunity for early learning

- Continuation of Letcee professional early learning programs and up-scaling to more communities.
- Simultaneous outreach and up-scaling of the mobile Toy Trucks.
- Improve data-gathering and screening that would help children with disabilities to go to special needs schools and receive support in inclusive settings from an early age.
- Strengthen partnerships between government and NGO's for better chances for children with disabilities and special needs.

8.5. Security and Safety

- Health promotion on good hygiene.
- Health promotion of a safe and clean environment.
- Ongoing strengthening efforts in collaboration with local NGO's and national initiatives addressing physical, emotional and sexual abuse and maltreatment.

9.Concluding comments and last words

We feel grateful for the amazing support from all the professionals, outreach volunteers, the highly qualified retired nurses and staff from LETCEE in the triangle with The Department of Health. The MCC team felt more than welcome at our fourth medical camp in KwaZulu-Natal in South Africa. Mutual targets were hit, and personal connections were strengthened in a harmonious partnership climate. All three parties (Kinderfonds MAMAS, LETCEE and MCC) have agreed to continue joined forces in the 2019 medical mission to further improve local child's health in KwaZulu-Natal. We are excited to continue our close collaboration with all the stakeholders and will monitor the referrals in the coming months. Additionally, we aspire to empower local current and future healthcare workers in future

venture and look forward to intensifying the collaboration with Ukwanda Centre for Rural Health and Holland Stellenbosch Medical Foundation.

We are grateful to all caretakers and the communities for bringing the children to location and helping to conduct the program. We are happy we got the opportunity to work with and to learn from all volunteers, translators and others who have helped directly or indirectly, despite their own obligations. And last but not least, we would like to thank the children and their caretakers who came to the checks for their inspiring presence.