

Medical Checks for Children



Medical Report South Africa, Eastern Cape 2023 *In collaboration with* Children of the Dawn & Children's Fund MAMAS

October 2023
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1. Introduction

On October 6th, 2023, a Medical Checks for Children (MCC) team, consisting of enthusiastic volunteers, started with the third mission in Matatiele. On this mission MCC worked together with a local organization called Children of the Dawn, which are committed to aiding vulnerable children, on supporting HIV/aids orphans and providing them with a better future. The Children of the Dawn organization itself is being supported by the Dutch organization Children's Fund MAMAS. On the 7th of October 2023, the team of MCC was welcomed by the members of Children of the Dawn. As in the previous year there was again a parade with singing and dancing guiding us through the streets of Matatiele, after which we gathered at the primary school in Area C for a great Welcome Ceremony with speeches, singing and traditional dancing, we felt very welcome!



Welcoming Ceremony

The team consisted of Erica van Maanen, general practitioner and medical mission leader; Dorien Jacobs, paediatric nurse and organizational mission leader; Joke Dunk, research-nurse; Mariska Jansman, paediatric nurse; Charlotte Könemann, medical doctor at KLM Health Services; Natasja Krüger, general practitioner; Jasper van Lemel, workingstudent at Military Services; Annelies van Randwijck, general practitioner; Arnoud Rikker, retired consultant; Noor Ridders, paediatric pulmonologist and Marije van Walsem, paediatric nurse.

From October 8-13th 2023, the MCC team checked and treated 1017 children, most of them aged newborn to 12 years. Aside from basic healthcare there was also room for health education for the children and their caretakers on topics as nutrition, hygiene and dental care.

The check sites, local schools, were located surrounding Matatiele: Malubaluba, Cedarville, Mango Location and Area C.

At these sites we saw children who were pre-selected by COTD, they had given information at the different locations and handed out tickets for the medical camp for the specific dates ensuring that especially the more impoverished children would also have the opportunity to attend the check-up and not only the children which were attending the school.

Of the 1017 children, 16% of these children were anaemic. Partly due to nutritional programs at schools in South Africa, there was again a relatively low percentage of malnourished children (5% underweight; 8% stunting; 2% wasting) although the percentage was a bit higher than in 2022.

South Africa also has a deworming program, but this year we even saw a higher percentage of children which did not receive the deworming in the past 6 months: in fact only 23% of the children had received this in the 6 months before the check-up.

Of the checked children, 70 (7%) were treated on site for acute worm infections. An example of diagnosis given during the mission: HIV + (N=1), Septic Arthritis (N=1) pneumonia (N=4), acute tonsillitis (N=6), asthma (N=1), referrals to TB clinic (N=3), eye infection (N=10), skin disorders (N=225), learning disability/developmental delay (N=4), pathological heart murmur (N=3). Furthermore, at least 19% of the children showed symptoms of cariës n.o.s (=dental decay) (N=193) and 12% suffered from caries with pain (N=112).

Of the 1017 children, 71 were referred for further testing, treatment or support (excluding the dental referrals). This number, the number of medical referrals, is far less than last year (1 in 14 children= 6.9%). Furthermore a large percentage are follow-up blood tests after treatment for anaemia, only 38 children (4%) were referred to a specialist in hospital and 92 children received advice to attend a dentist (9%) and 35 children (3%) received a referral to receive attention in social programme to identify the social needs in the family and to see what kind of help is needed and can be given by COTD.

The MCC team was again utmost grateful for the cooperation with Nandipha Magqashela, who together with her team prepared the mission down to the last detail. She received support from Palesa Matuludi, CEO of Children of the Dawn. Together with the help of local volunteers and retired nurses they were of great support to us.

Before the mission took off, money and supplies were raised in our home country with several fundraisers by the team members and all our volunteers paid their own travel- and accommodation costs so all money raised goes to the medication, equipment and transportation locally.

Thanks to passionate volunteers in the Netherlands hundreds of toothbrushes, band-aids, stickers, and toys were collected. A special thanks to the ladies who passionately knitted hundreds and hundreds of woollen hats and scarfs. The money is going to be used for the aftercare projects in Matatiele if necessary. We are very grateful for all the love and support that we received upfront, during and after the mission.

This year we ordered the medication needed from Bergview Pharmacy in Matatiele and we would like to express our gratitude to Lee Buckley (pharmacist) and Veronique Mc Gregor from Bergview Pharmacy for their excellent work in supplying us with the correct medication.

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 toothbrush 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, diarrhea, 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

At the different locations we checked children who were included in the Children of the Dawn program and great numbers of children from the three main wards. During the mission in Matatiele, MCC saw 1017 children in total from different locations. The ages of the children checked was comparable to 2022. The most important findings are described below. More detailed tables of the findings given can be found in Appendix 1.

Program:

Day 1: Malubaluba
Day 2: Cedarville
Day 3: Cedarville
Day 4: Mango Location
Day 5: Area C



Surroundings

Children and their caretakers visited the check sides on different locations as listed below in Table 1.

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

	dd-mm-yy	dd-mm-yy	dd-mm-yy	dd-mm-yy	dd-mm-yy	
Check locations	08-10-23	09-10-23	10-10-23	12-10-23	13-10-23	Total
Malubalube	212	0	0	0	0	212
Cedarville	0	211	154	0	0	365
Mango	0	0	0	242	0	242
Area C	0	0	0	0	198	198
Total	212	211	154	242	198	1017

Children checked last year.

Matatiele 2022	Total		Luxeni		Caba		Zwelitsha		Masakala	
	887		Total=	324	Total=	268	Total=	155	Total=	140
	N	%	n	%	n	%	n	%	n	%
	887	100	324	36,5	268	30,2	144	17,5	140	15,8

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

Age	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total=	212	Total=	365	Total=	242	Total=	198
	N	%	n	%	n	%	n	%	n	%
<=1 year	93	9%	16	8%	41	11%	20	8%	16	8%
>1and <5 years	204	20%	51	24%	86	24%	39	16%	28	14%
<5 years	279	27%	63	30%	123	34%	53	22%	40	20%
>=5and <=10 years	517	51%	98	46%	195	53%	114	47%	110	56%
>10 years	221	22%	51	24%	47	13%	75	31%	48	24%
Gender										
Boy	518	51%	92	43%	198	54%	127	52%	101	51%
Girl	499	49%	120	57%	167	46%	115	48%	97	49%

4. Specific diagnoses

The statistics of the respiratory, cardiovascular, ENT, eye problems were a bit lower than the numbers in earlier years but the number of skin problems and dental caries were very high this year.

1. Growth abnormality and malnutrition

Malnutrition 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 edematous extremities and hair signs. More prevalent are the hidden forms of undernourishment that can stunt child growth and development and impair the immune system¹. It is reported that over one-third of child deaths in South-Africa are due to undernutrition, mostly from increased severity of disease².

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 undermines 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 Matatiele which we have visited for our medical mission, 5% of the children were classified as underweight, 8% of the children suffered from stunting and 2% suffered from wasting. If we look at children under five specifically (high risk group), we see that 6% of children are underweight, 15% are stunting and 3% are wasting. These statistics are remarkable in comparison with the COVID-19 poverty numbers. This could maybe be explained by the efforts of the food programs from Children of the Dawn and The Mama's. 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.

¹ Merson, Global Health Disease Programs, Systems and Policies, page 243.

² UNICEF 2009 State of the World's Children report

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. Paediatric obesity and stunting are both risk factors for metabolic syndrome and diseases in adulthood ³. The screening on obesities is not yet standardized within the mission, yet there was an increasing number of children with overnutrition in the form of overweight and obesity seen during the mission.

³ Kimani-Murage, Elizabeth W., et al. "The prevalence of stunting, overweight and obesity, and metabolic disease risk in rural South African children." *BMC public health* 10.1 (2010): 158.

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

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Underweight	48	5%	12	6%	21	6%	10	4%	5	3%
No underweight	783	77%	150	71%	286	78%	154	64%	193	97%
Unknown	186	18%	50	24%	58	16%	78	32%	0	0%
Underweight children per age										
<=1 year	3	3%	1	6%	1	2%	1	5%	0	0%
>1and <5 years	16	8%	3	6%	8	9%	3	8%	2	7%
<5 years	18	6%	4	6%	9	7%	3	6%	2	5%
>=5and <=10 years	29	6%	8	8%	12	7%	7	6%	2	2%
>10 years	1	2%	0	0%	0	0%	0	0%	1	2%
Underweight children per gender										
Boy	29	60%	7	58%	10	48%	10	100%	2	40%
Girl	19	40%	5	42%	11	52%	0	0%	3	60%

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

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Stunting	82	8%	25	12%	38	10%	13	5%	6	3%
No stunting	934	92%	187	88%	326	89%	229	95%	192	97%
Unknown	0	0%	0	0%	0	0%	0	0%	0	0%

Stunting children per age										
<=1 year	10	11%	4	25%	4	10%	1	5%	1	6%
>1 and <5 years	36	18%	9	18%	18	21%	6	15%	3	11%
<5 years	43	15%	12	19%	22	18%	6	11%	3	8%
>=5 and <=10 years	24	5%	8	8%	11	6%	4	4%	1	1%
>10 years	15	7%	5	10%	5	11%	3	4%	2	4%
Stunting children per gender										
Boy	43	52%	9	36%	23	61%	7	54%	4	67%
Girl	39	48%	16	64%	15	39%	6	46%	2	33%

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

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Wasting	17	2%	4	2%	8	2%	3	1%	2	1%
No wasting	473	47%	121	57%	186	51%	91	38%	75	38%
Unknown	526	52%	87	41%	170	47%	148	61%	121	61%
Wasting children per age										
<=1 year	1	1%	0	0%	0	0%	1	5%	0	0%
>1 and <5 years	6	3%	1	2%	3	4%	1	3%	1	4%
<5 years	7	3%	1	2%	4	3%	1	2%	1	3%
>=5 and <=10 years	10	5%	3	5%	4	6%	2	5%	1	3%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%
Wasting children per gender										
Boy	10	59%	2	50%	4	50%	3	100%	1	50%
Girl	7	41%	2	50%	4	50%	0	0%	1	50%

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 a fortified cooked porridge breakfast besides the NSNP to all Quintile 1 – 2 schools.
- Strengthen awareness for the paradox of double burden of malnutrition in rural South Africa
- MCC advises promotion and emphasis on creating healthy habits

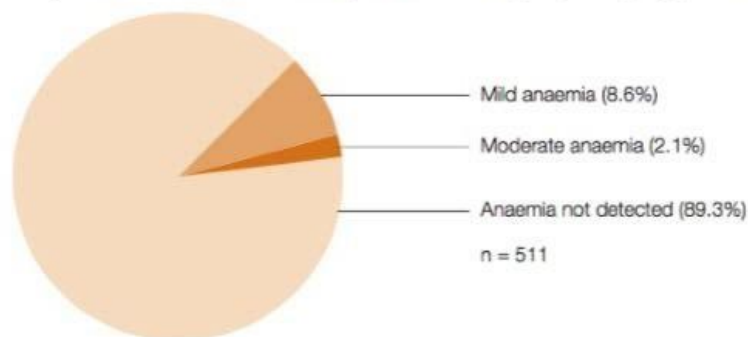
- MCC advises promotion of physical education in schools and education about less ultra-processed foods to tackle the double burden

2. Anaemia

Globally, anaemia among under-five children is a serious public health problem. The causes for anaemia among under-five children are complex. Among these, low birth weight, undernutrition, poor socioeconomic status, household food insecurity, duration of breastfeeding, poor dietary iron intake, poor maternal educational status, diarrhoea, fever, poverty, poor sanitation and hygiene, monotonous diet, parent's level of education, and maternal anaemia were the commonest contributors for under-five anaemia. The rapid growth and cognitive development of children make them more vulnerable for the development of anaemia. The consequences of iron deficiency anaemia (IDA) during childhood include growth retardation, reduced school achievement, impaired motor and cognitive development, and increased morbidity and mortality. Mental impairments at an early age are thought to be irreversible and the consequences may continue even after treatment, reinforcing the importance of early detection and prevention.

In general, the prevalence of anaemia seems to drop. In the South African National Health and Nutrition Survey, 2012 (Sahanes -1 study) the prevalence of anaemia was 10.7% (children under five years of age) (see figure 1 from the Sahanes -1 study). The huge decrease is correlated to the beneficial effect of the Food Fortification Program.

Figure 3.8.2.1: Anaemia status of children under five years of age, South Africa 2012



* There no cases of severe anaemia among children under five years of age

Figure 1: Anaemia status of children under five years of age, South Africa 2012 ⁴

Anaemia is always multifactorial in cause. Household factors are important when considering malnutrition and anaemia. A study on the diversity of the diet of the population in Eastern Cape showed ⁵:

The diagnosis anaemia was made in 166 of the 896 children (18,5%) eligible for testing their blood. Of the children under five, 25% were 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. If we take a closer look at the differences between the four visited wards, we see a remarkable difference. Malubaluba has a remarkably high prevalence of anaemia of 25% in comparison with the other locations. For example Area C has a prevalence of 11%. For the future it will be interesting to explore the possible causes of this difference.

In one child 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. Unfortunately for this child he was eventually diagnosed to be HIV positive and he is put on treatment for that. Strong support was again given by Nandipha Magqashela (Children of the Dawn) who kept a lifeline with the family and gave updates to the other members of our team. Depending on the age and presence of growth abnormalities, children were given iron supplements or multivitamins for at least two months.

⁴ The South African National Health and Nutrition Survey, 2012 (SANHANES-1 study)

⁵ Labadarios, Demetre, Nelia Patricia Steyn, and Johanna Nel. "How diverse is the diet of adult South Africans?." Nutrition journal 10.1 (2011): 33.

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		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Anaemia	165	16%	52	25%	62	17%	30	12%	21	11%
No anaemia	726	71%	159	75%	252	69%	168	69%	147	74%
Unknown	121	12%	1	0%	48	13%	43	18%	29	15%
Hb <5,0 mmol	1	0%	0	0%	1	0%	0	0%	0	0%
Anaemia per age										
<=1 year	22	24%	6	38%	9	22%	4	20%	3	19%
>1and <5 years	52	25%	15	29%	22	26%	8	21%	7	25%
<5 years	71	25%	22	35%	29	24%	11	21%	9	23%
>=5and <=10 years	80	15%	24	24%	31	16%	15	13%	10	9%
>10 years	14	6%	6	12%	2	4%	4	5%	2	4%
Anaemia per gender										
Boy	96	58%	30	58%	37	60%	21	70%	8	38%
Girl	69	42%	22	42%	25	40%	9	30%	13	62%

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

3. Worm infections

Worm infection is imposing an unnecessary burden on many South-African children and on the overall cost of healthcare. Disadvantaged children carry most of the load, especially those who live in densely populated and underserved urban informal settlements, as well as in some rural areas. The presence of intestinal parasites in a population group is indicative of lack of proper sanitation, low economic standards and poor educational background. 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, anemia, 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 South-African Department of Health has launched a national deworming programme in 2016⁶. 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. As stated before, there was a dramatic decrease in children who received the preventive anti-worm treatment in the checked areas. Only 23% of the children (230/1017) had received anti -worm treatment in the last half year, in comparison to 76% in 2019 and 25% in 2022. These numbers confirm the disruption in service delivery, service access and child wellbeing as a consequence of the COVID-19 pandemic. Due to the high number of younger children in need of preventive anti-worm treatment the MCC supplies had again to be refilled during the mission. All of the children who had not received anti-worm treatment were dewormed on the spot. Children with severe acute worm infections were treated with albendazole or mebendazole during three consecutive days depending on their weight.

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

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Anti-worm	230	23%	36	17%	91	25%	71	29%	32	16%
No anti-worm	785	77%	176	83%	274	75%	169	70%	166	84%
Anti-worm per age										
>1 and <5 years	96	47%	21	41%	36	42%	24	62%	15	54%
<5 years	116	42%	23	37%	45	37%	32	60%	16	40%
>=5 and <=10 years	92	18%	11	11%	39	20%	29	25%	13	12%
>10 years	22	10%	2	4%	7	15%	10	13%	3	6%
	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	

Suggestion:

- MCC advises to continue the *community delivery strategy* of anti -worm medication: twice a year one tablet of mebendazol 500 mg and increase the emphasis on that by educating the schools to take their role in this but also encourage the health professionals working at the clinics to properly check the deworming status on each visit of a child and deworm them on the spot if they are behind schedule.
- MCC advises to optimize the community delivery strategy of anti-worm medication in cooperation with

the department of health by implementing training for teachers and other school personnel who will hand out the medication

⁶ South Africa: Government Launches Deworming Programme for Learners. 29 feb 2016. <http://allafrica.com/stories/201603010156.html>

4. Psycho- social, emotional and mental health - developmental disabilities.

Mental health problems in childhood and adolescence pose a major threat to public health. Epidemiological studies in high, middle and low income countries indicate that approximately one in five children and adolescents suffer from a mental disorder. In many instances these persist into adulthood. In South Africa, HIV infection, substance use, and exposure to violence increase vulnerability to mental disorder.

COVID-19 has put the mental health and well-being of an entire generation at even greater risk. The disruption of their routines, education, recreation, as well as concern for family income and health, is leaving many young people feeling afraid, angry and anxious for their future. Therefore special emphasis was put on the mental and emotional wellbeing of the children checked. Recent numbers given by UNICEF highlights this problem.⁷ Anxiety and depression made up about 40% of diagnosed mental disorders; the others include attention deficit/hyperactivity disorder, conduct disorder, intellectual disability, bipolar disorder, eating disorders, autism, schizophrenia, and a group of personality disorders. Roughly 50 children were helped by social workers from Children of the Dawn, either directly on the spot or in the referral process later on. There were appalling cases of domestic violence, sexual abuse, and other ACEs (adverse childhood experiences)



Suggestions:

- MCC advocates for an approach to prevention, risk reduction and early intervention for traumatized youth.
- MCC advocates delivery of social health services from skilled social workers like Nandipha Magqashela (Children of the Dawn)
- MCC sincerely advocates building an infrastructure for preventive and curative interventions

⁷ Highlighting the importance of child and adolescent mental health. Child Gauge 2022. UNICEF South Africa.

5. Cerebral Palsy (CP)

During our medical camp in 2022 we encountered a considerable number of special needs children. There were a group of children (nine in total) with (spastic) cerebral palsy which suffered from severe contractures and were clearly in pain.

We gave recommendation for the treatment of this group in last years report.

This year we had not put extra emphasis in the selection of this group to be seen during the medical camp and therefore we only saw few children in this category maybe also due to the extra effort it takes to bring such children to the check locations. We believe it may be worthwhile in future camps to select these children again and seek

cooperation with a local physiotherapist and/or occupational therapist during the medical camp in order to improve the situation for these children. It will be necessary to seek assistance of the local health services in this regard.

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 children¹⁰.

¹⁰ http://www.who.int/maternal_child_adolescent/child/nurturing-care-framework/en/



Responsive caregiving

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. Only 9 (1%) of the children did not have a caretaker present at the day of the medical check (table 8). We were very pleased with this high attendance of caretakers. Especially this year more fathers attended with their children which is a good development. When there was no caretaker around, some medication was distributed by the regional field worker 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 8: Child with care taker at the day of the check

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
No	9	1%	6	3%	2	1%	0	0%	1	1%
Yes	1004	99%	205	97%	360	99%	242	100%	197	99%
Teacher	2	0%	1	0%	1	0%	0	0%	0	0%

6. Referrals

During MCC's visit to the rural areas around Matatiele, a list was made for children needing referral for further diagnosis and/or treatment for suspected pathologies. There was a total of 71 children who were referred by MCC for various and sometimes multiple medical or social follow -up as well as the advice to seek dental attendance for 92 children. The last category was much higher in Mango location and Area C than in Malubaluba/Cedarville which suggests a lower level of proper dental care in those area's and it is recommended to give advice concerning the effects of eating candy and sugar as well as the lack of toothbrushing. It would be beneficial if there could be a outreaching dental care program from the local hospital to give health education on dental care and caries as well as dental treatment availability in early stages of dental decay.

We recommend the addition of a dentist to the medical team for future camps.

MCC has deep respect for the efforts made by the team of Children of the Dawn for their hard work and commitment in following up these children and their families. To this date we have received regular updates of the referrals.

Suggestions:

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

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

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Dentist	92	9%	15	7%	17	5%	32	13%	28	14%
Specialist in hospital	38	4%	11	5%	15	4%	8	3%	4	2%
Revisit	3	0%	1	0%	0	0%	1	0%	1	1%
Social program	35	3%	2	1%	9	2%	14	6%	10	5%
Diagnostics (HIV/Malaria)	3	0%	1	0%	2	1%	0	0%	0	0%
Nieuwendijk	0	0%	0	0%	0	0%	0	0%	0	0%
Bloodtest after 3 months	23	2%	4	2%	11	3%	4	2%	4	2%
International organisation	0	0%	0	0%	0	0%	0	0%	0	0%
Other...	8	1%	1	0%	5	1%	1	0%	1	1%

7. Treatment

The deworming tablets was the highest category in prescriptions as well as the skin creams. The were relatively little antibiotics prescribed this year.

Table 11: Treatment among all children per geographical location

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
ferro	32	3%	13	6%	12	3%	2	1%	5	3%
mother iron	12	1%	3	1%	4	1%	2	1%	3	2%
multivitamins	124	12%	47	22%	41	11%	19	8%	17	9%
anti-worm	648	64%	124	58%	210	58%	158	65%	156	79%
acute worm	92	9%	35	17%	32	9%	18	7%	7	4%
anti-scabies	21	2%	0	0%	0	0%	13	5%	8	4%
niclosamide	2	0%	0	0%	1	0%	0	0%	1	1%
scabies soap	18	2%	6	3%	4	1%	8	3%	0	0%
amoxicillin	17	2%	3	1%	8	2%	2	1%	4	2%
augmentin	1	0%	0	0%	0	0%	1	0%	0	0%
2e lijns antibiotica	1	0%	0	0%	0	0%	1	0%	0	0%
ivermectine for lice	1	0%	0	0%	1	0%	0	0%	0	0%
metranidazol	1	0%	0	0%	0	0%	1	0%	0	0%
co-trimoxazol	1	0%	0	0%	0	0%	0	0%	1	1%
ORS	1	0%	0	0%	1	0%	0	0%	0	0%
eardrops	7	1%	4	2%	1	0%	0	0%	2	1%
mupirocine=Bactroban	11	1%	1	0%	5	1%	3	1%	2	1%
hydrocortisone cream	32	3%	7	3%	12	3%	5	2%	8	4%
dactarin cream	105	10%	27	13%	28	8%	23	10%	27	14%
neutral cream	2	0%	0	0%	1	0%	0	0%	1	1%
griseofulvine	34	3%	4	2%	16	4%	8	3%	6	3%
eyedrops	18	2%	11	5%	1	0%	4	2%	2	1%

8. Conclusions and recommendations

We feel grateful for the amazing support from all the professionals, outreach volunteers, the highly qualified retired nurses and staff from Matatiele. We are excited to continue our close collaboration with all the stakeholders and will monitor the referrals in the coming months.

To summarize our suggestions from the chapters:

- 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 a fortified cooked porridge breakfast besides the NSNP to all Quintile 1 – 2 schools.
- Strengthen awareness for the paradox of double burden of malnutrition in rural South Africa
- MCC advises promotion and emphasis on creating healthy habits
- MCC advises promotion of physical education in schools and education about less ultra-processed foods to tackle the double burden
- 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
- MCC advises to continue the *community delivery strategy* of anti -worm medication: twice a year one tablet of mebendazol 500 mg.
- MCC advises to optimize the community delivery strategy of anti-worm medication in cooperation with the department of health by implementing training for teachers and other school personnel who will hand out the medication
- MCC advocates for an approach to prevention, risk reduction and early intervention for traumatized youth.
- MCC advocates delivery of social health services from skilled social workers like Nandipha Magqashela (Children of the Dawn)
- MCC sincerely advocates building an infrastructure for preventive and curative interventions
- MCC advises involving the caretakers and specialist therapists in basic rehabilitation techniques to treat and prevent contractures. An addition to the medical camp of local occupational therapists and /or physical therapist could be beneficial in this.
- Active collaboration with the Department of Health and Children of the Dawn is essential in developing interventions to strengthen referral processes as a means to improve the quality of life for disadvantaged and vulnerable children.
- An addition of professional nurses and staff nurses from local community- and mobile clinics to the medical camp as interpreters would ensure a teaching aspect as well. By observing and learning from the doctors involved in the medical camp who are very happy to share their knowledge, the nurses can bring back this knowledge in their daily work at the clinics and the community can benefit from this.

Finally, 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.

On behalf of the MCC Matatiele team 2023



9. Appendices

Appendix 1:

Table 12: Disease prevalence among all children per geographical location

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
Underweight	48	5%	12	6%	21	6%	10	4%	5	3%
Stunting	82	8%	25	12%	38	10%	13	5%	6	3%
Wasting	17	2%	4	2%	8	2%	3	1%	2	1%
Anaemia	165	16%	52	25%	62	17%	30	12%	21	11%
HIV pos.	3	0%	0	0%	2	1%	0	0%	1	1%
AIDS	2	0%	1	0%	1	0%	0	0%	0	0%
Malaria (suspected)	7	1%	1	0%	3	1%	3	1%	0	0%
vitamin deficit (clinical signs)	1	0%	0	0%	1	0%	0	0%	0	0%
Malaria (confirmed)	9	1%	2	1%	6	2%	0	0%	1	1%
Abuse/social diagnosis	3	0%	0	0%	2	1%	0	0%	1	1%
syndrome n.o.s.	1	0%	0	0%	1	0%	0	0%	0	0%
pneumonia (clinical)	4	0%	1	0%	2	1%	0	0%	1	1%
tuberculosis (clinical)	3	0%	1	0%	1	0%	0	0%	1	1%
bronchitis	8	1%	2	1%	3	1%	3	1%	0	0%
BHR/asthma	1	0%	0	0%	1	0%	0	0%	0	0%
Respir. Other	2	0%	0	0%	2	1%	0	0%	0	0%
diarrhoea without dehydration	3	0%	0	0%	1	0%	2	1%	0	0%
constipation	2	0%	0	0%	0	0%	0	0%	2	1%
active worm infection	70	7%	27	13%	19	5%	16	7%	8	4%
active lintworm	1	0%	0	0%	0	0%	0	0%	1	1%
otitis media acuta	8	1%	1	0%	2	1%	2	1%	3	2%
otitis media with effusion	11	1%	2	1%	4	1%	1	0%	4	2%
otitis externa	6	1%	2	1%	2	1%	0	0%	2	1%

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
tympanic perforation	1	0%	0	0%	0	0%	0	0%	1	1%
mastoiditis	1	0%	0	0%	0	0%	1	0%	0	0%
(adeno)tonsillitis	6	1%	1	0%	5	1%	0	0%	0	0%
candida stomatitis	2	0%	0	0%	1	0%	0	0%	1	1%
sinusitis	1	0%	1	0%	0	0%	0	0%	0	0%
hearing impairment	5	0%	0	0%	4	1%	0	0%	1	1%
other	5	0%	1	0%	1	0%	2	1%	1	1%
cariës n.o.s.	193	19%	35	17%	65	18%	54	22%	39	20%
pain n.o.s	6	1%	0	0%	0	0%	4	2%	2	1%
caries with pain	117	12%	21	10%	34	9%	33	14%	29	15%
wounds n.o.s.	2	0%	0	0%	1	0%	1	0%	0	0%
eczema n.o.s.	27	3%	7	3%	11	3%	4	2%	5	3%
dermatomycosis	93	9%	22	10%	26	7%	21	9%	24	12%
Impetigo/furunculosis	5	0%	1	0%	2	1%	1	0%	1	1%
scabies	37	4%	6	3%	5	1%	21	9%	5	3%
Tinea Capitis	50	5%	8	4%	20	5%	12	5%	10	5%
wounds infected,	4	0%	0	0%	2	1%	1	0%	1	1%
Skin other (psoriasis etc)	7	1%	1	0%	3	1%	3	1%	0	0%
psychomotoric retardation	4	0%	2	1%	0	0%	2	1%	0	0%
epilepsy	6	1%	1	0%	1	0%	4	2%	0	0%
Neuromusc other	7	1%	1	0%	3	1%	1	0%	2	1%
physiological murmur	10	1%	2	1%	5	1%	1	0%	2	1%
pathological murmur (suspected)	3	0%	2	1%	1	0%	0	0%	0	0%
Cardio other	2	0%	2	1%	0	0%	0	0%	0	0%
refractory problem	7	1%	2	1%	4	1%	1	0%	0	0%
strabismus	2	0%	0	0%	0	0%	1	0%	1	1%
keratoconjunctivitis	10	1%	7	3%	1	0%	1	0%	1	1%

	Total		Malubalube		Cedarville		Mango		Area C	
	1017		Total= 212		Total= 365		Total= 242		Total= 198	
	N	%	n	%	n	%	n	%	n	%
amblyopia	1	0%	0	0%	0	0%	1	0%	0	0%
eye other	13	1%	5	2%	1	0%	6	2%	1	1%
Sickle Cell	2	0%	0	0%	1	0%	1	0%	0	0%
endocrin other	2	0%	0	0%	1	0%	1	0%	0	0%
urogen other	4	0%	1	0%	1	0%	1	0%	1	1%
skeletal other	4	0%	1	0%	2	1%	0	0%	1	1%
hernia(umbilical etc)	3	0%	0	0%	2	1%	1	0%	0	0%
abdomen other	2	0%	0	0%	2	1%	0	0%	0	0%