

Medical Checks for Children

# Medical Report Tanzania Mikochenie and Mtakuja 2014

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**Introduction:**

In the third week of July 2014, Medical Checks for Children (MCC) visited Tanzania for the sixth time, several villages in the North of Tanzania (Africa). The MCC team checked and treated free of cost 615 children of Mikochenie and 535 children of Mtakuja. The medical camp was organized for seven days from 19 to 23 July in Mikochenie en 24 and 25 July in Mtakuja.

The MCC team consisted of ten members from The Netherlands: Karlien Bongers (medical-end-responsible and mission leader, general surgeon and consultant), Iris van de Gevel (organization-end-responsible, toxicologist), Anne Vlietstra (family doctor), Leanne de Vetten (paediatrician), Christian Elders (neurologist), Mieke Keimpema (family doctor), Laura Breij (medical doctor, scientist), Stefan Kowalski (account coordinator), Marga Ettema (yoga teacher in training) and Dick Ettema (co-founder Bite-the-Lemon).

The medical checks were organized in close cooperation with The Mtakuja Development Project, a partnership between Mtakuja village and the NGO FT Kilimanjaro with the aim to eradicate poverty from the community of Mtakuja.

The villages Mikochenie and Mtakuja are located in the Kilimanjaro Region of northern Tanzania. The nearest hospital is Tanganyika Planting Company (TPC) hospital, approximately 6 to 11 km from Mtakuja (2-3 hours by foot, 1-2 hours by bike) and 15-20 km from Mikochenie. Technical equipment, medical supplies and toothbrushes were brought from the Netherlands by MCC team members. Most of the medication was ordered by Gerbert. Soap for every child was purchased from local shops in Moshi. Toothbrushes were donated by OHRA and colleagues of Stefan Kowalski and by friends of Marga and Dick Ettema. We are very grateful for these donations!

The cooperation of FT Kilimanjaro (FTK) (in person of Gerbert Rieks, James Ashire and Stella Mserikie) existed out of the following (amongst others):

- Education and selection of translators/local helpers.
- Providing board and lodging of all MCC team members.
- Transportation of the MCC team from Kilimanjaro airport to TPC and transportation to the check locations.
- Announcement of the medical camp in the villages.
- Making copies of all necessary papers.
- Giving support in ordering and delivery of medication.
- Giving all kinds of support to the MCC team during the medical camp.
- Bringing children to TPC hospital.
- Give follow-up for the referred children to KCMC and CCBRT.



**Medical Checks for Children on location:**

The medical checks were performed in seven days in two different villages. The first five days MCC was based in Mikochenie, and the last two days in Mtakuja. During the free of costs medical checks, the children were checked following the MCC carousel:

1. Registration of the child
2. Measuring height and weight
3. Food and water inventory
4. Blood test (haemoglobin)
5. Urine test and/or malaria test when indicated
6. Physical examination by a medical doctor
7. Giving medication (pharmacy)
8. HIV/AID counseling
9. Education on tooth brushing (a tooth brush, soap and tooth paste was given to each child)

At each station, and specially at physical examination and pharmacy station, education was given to the children and their care takers on good nutrition and hygiene.

The MCC team paid special attention to the prevalence, treatment and prevention of anaemia, growth abnormalities, worm infections and HIV/Aids.

In addition to the information given to the parents during the medical camp, a special training was given to the Community Health Workers.

A HIV test was performed for all mothers (voluntary) and on medical indication for children as part of the carousel. In addition, on medical indication, a malaria test and an urine test could be performed on the spot.

**Results Mikochenie**

In Mikochenie, we saw in total 615 children. For Mikochenie Ndogo it was the second medical camp, for all other subvillages of Mikochenie, it was the first medical camp.

Of the children of Mikochenie Ndogo, 65% of the children attended the medical camp for the second time (registration files of 2013 were found).

Special attention was paid to the presence of caretakers during the medical camp, at the announcement of the medical camp and at registration. Almost all children (608, 99%) brought a caretaker. We are very pleased with this high attendance of caretakers, as an important part of the medical camp is the transfer and exchange of medical and healthcare information. We know that the presence of caretakers will make the medical camp more sustainable. Therefore, we stress that in the coming years, equal attention should be paid to the presence of the children's caretakers.

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

Village/Date	19-07	20-07	21-07	22-07	23-07	Total
Kirungu		118				<b>118</b>
Masaini			16	28	38	<b>82</b>
Mikochenie Kubwa	1		113	111	80	<b>305</b>
Mikochenie Ndogo	106			1		<b>107</b>
Others				2	1	<b>3</b>
<b>Total</b>	<b>107</b>	<b>118</b>	<b>129</b>	<b>142</b>	<b>119</b>	<b>615</b>

In general it can be stated that most of the children coming from Masaini are Masai. A few children coming from other sub villages are also Masai, however, a separate analysis for this

subpopulation is not considered required (due to the few numbers identified). Next year, we will identify the travelling Masai coming to the medical camp, in order to see whether or not specific advises are required for this subgroup.

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

Age	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo		Others	
	615		Total= 118		Total= 82		Total= 305		Total= 107		Total= 3	
	N	%	n	%	n	%	n	%	n	%	n	%
<=1 year	130	21%	21	18%	13	16%	73	24%	22	21%	1	33%
>1 en <5 years	228	37%	52	44%	29	35%	103	34%	42	39%	2	67%
<5 years	345	56%	67	57%	41	50%	172	56%	62	58%	3	100%
>=5 en <=10 years	267	43%	50	42%	41	50%	132	43%	44	41%	0	0%
>10 years	3	0%	1	1%	0	0%	1	0%	1	1%	0	0%
<b>Gender</b>												
Boy	284	46%	56	47%	40	49%	144	47%	44	41%	0	0%
Girl	331	54%	62	53%	42	51%	161	53%	63	59%	3	100%

In total 40% of the 615 children were anaemic (see table 3). The highest prevalence of anaemia was seen in Masaini. In general, Masai are living in Masaini and a difference in living conditions, food availability and eating tradition, might be the cause of this high prevalence when compared to the other sub-villages. During the coming year or at the medical camp in 2015, it is recommended to investigate the food and drinking habits of all sub-villages.

All children with anaemia were treated with iron or multivitamin.

A total of 28 children had a Hb below 5 mmol/l. These children were treated and will be invited for a Hb re-check after 3 months. In addition, all children with a Hb below 5 mmol/l were investigated for malaria and referred to TPC hospital if required (8 children were referred).



**Table 3: Prevalence of anaemia per geographical location by age and gender**

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo		Others	
	615		Total=118		Total= 82		Total= 305		Total=107		Total=3	
	N	%	n	%	n	%	N	%	n	%	n	%
Anaemia	244	40%	39	33%	52	63%	103	34%	48	45%	2	67%
No anaemia	366	60%	77	65%	30	37%	199	65%	59	55%	1	33%
Unknown	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%
Hb <5,0 mmol	28	5%	3	3%	8	10%	12	4%	4	4%	1	33%
<b>Anaemia per age</b>												
<=1 year	76	58%	16	76%	8	62%	40	55%	11	50%	1	100%
>1 en <5 years	88	39%	15	29%	20	69%	32	31%	20	48%	1	50%
<5 years	156	45%	28	42%	27	66%	69	40%	30	48%	2	67%
>=5 en <=10 years	87	33%	11	22%	25	61%	34	26%	17	39%	0	0%
>10 years	1	33%	0	0%	0	0%	0	0%	1	100%	0	0%
<b>Anaemia per gender</b>												
Boy	110	39%	18	32%	24	60%	46	32%	22	50%	0	0%
Girl	134	40%	21	34%	28	67%	57	35%	26	41%	2	67%

We gave during the medical check-ups all children and their guardians nutritional advise with emphasis on vegetable intake and vitamin C. When it comes to the prevention of anaemia, the vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (as milk and tea counterparts it). Therefore we recommend to add a vitamin C source to the school meal, e.g. a ¼ orange, lemon or tomato. As already started in Mikochenie, children might benefit from the school gardens and trees planted at the schools. Not only when the fruits and vegetables are added to the school meal, but also as an educational point of view.

For babies, we advised exclusive breastfeeding up to six months, then start with the introduction of normal food and we discussed the possibilities of donation of breast milk by another woman when the normal supply is lacking.

Malaria was checked based on anamnesis, or based on a Hb below 5 mmol/l. Overall, malaria was checked in 59 children, with 6 positive test results.

A HIV counsellor was HIV was present during the medical camp. All parents received counselling, and were voluntarily checked for HIV.

In Mikochenie Ndogo 40 HIV tests were performed, of which 3 were positive.

In Kirungu 23 HIV tests were performed, of which none were positive.

In Mikochenie Kubwa 24 HIV tests were performed, of which 4 were positive.

In Mikochenie Kubwa we could not offer all parents a HIV test, due to a lack of available HIV testing kits.

In total 13% of the children in Mikochenie had underweight, 24% were stunted and 10% wasted. Details can be found in tables 4, 5 and 6.

General figures for Tanzania indicate that 17% of children under the age of five are underweight, 44% are stunted, and 4% are wasted (UNICEF, 2009. State of the World's Children).

For children under five in Mikochenie 11% of the children are underweighted, 33% are stunted and 10% are wasted. The millennium development goal for underweight is 15%, Mikochenie meet this goal when you look the overall figures, however, additional attention might be paid to some subvillages, e.g. Mikochenie Ndogo.

Stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections. Stunting generally occurs before age two, and effects are largely irreversible and have a huge impact on general development, school results and financial situation in later life.

Wasting, or low weight for height, is a strong predictor of mortality among children under five. It is usually the result of acute significant food shortage and/or disease.

Underweight encompasses both stunting and wasting.

Data on stunting were complete as opposed to underweight and wasting data. However, estimation of age is sometimes troublesome without official documents stating date of birth and children or even parents not knowing children's age, making the stunting data less reliable than wasting data.

**Table 4: Prevalence of weight/age at/or under P3 (underweight) per geographical location, age and gender**

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total=118		Total= 82		Total= 305		Total=107	
	N	%	n	%	n	%	N	%	n	%
Underweight	77	13%	4	3%	13	16%	36	12%	23	22%
No underweight	533	87%	113	97%	68	84%	267	88%	83	78%
Unknown	4	1%	1	1%	1	1%	1	0%	1	1%
<b>Underweight children per age</b>										
<=1 year	12	9%	1	5%	2	15%	6	8%	2	9%
>1 en <5 years	29	13%	2	4%	2	7%	14	14%	11	26%
<5 years	39	11%	3	4%	3	7%	20	12%	12	19%
>=5 en <=10 years	38	14%	1	2%	10	25%	16	12%	11	25%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%
<b>Underweight children per gender</b>										
Boy	40	14%	3	5%	9	23%	21	15%	7	16%
Girl	37	11%	1	2%	4	10%	15	9%	16	26%

**Table 5: Prevalence of length/age at/or under P3 (stunting) per geographical location, age and gender**

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total=118		Total= 82		Total= 305		Total=107	
	N	%	n	%	n	%	N	%	n	%
Stunting	149	24%	31	26%	10	12%	71	23%	36	34%
No stunting	462	75%	87	74%	72	88%	232	76%	69	66%
Unknown	3	0%	0	0%	0	0%	1	0%	2	2%
<b>Stunting children per age</b>										
<=1 year	51	39%	10	48%	3	23%	24	33%	13	59%
>1 en <5 years	67	30%	20	38%	3	10%	26	25%	18	44%
<5 years	112	33%	27	40%	6	15%	49	28%	29	48%
>=5 en <=10 years	37	14%	4	8%	4	10%	22	17%	7	16%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%
<b>Stunting children per gender</b>										
Boy	78	28%	15	27%	5	13%	41	29%	17	40%
Girl	71	22%	16	26%	5	12%	30	19%	19	31%

**Table 6: Prevalence of weight/length at/or under P3(wasting) per geographical location, age and gender**

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total=118		Total= 82		Total= 305		Total=107	
	N	%	n	%	n	%	N	%	n	%
Wasting	53	10%	2	2%	14	21%	23	8%	13	14%
No wasting	499	90%	105	98%	52	79%	260	92%	80	86%
Unknown	62	10%	11	9%	16	20%	21	7%	14	13%
<b>Wasting children per age</b>										
<=1 year	10	8%	0	0%	2	15%	6	8%	1	5%
>1 en <5 years	25	11%	1	2%	5	17%	10	10%	9	22%
<5 years	33	10%	1	1%	6	15%	16	9%	9	15%
>=5 en <=10 years	20	10%	1	3%	8	32%	7	6%	4	13%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%
<b>Wasting children per gender</b>										
Boy	25	10%	1	2%	8	24%	12	9%	4	10%
Girl	28	10%	1	2%	6	19%	11	7%	9	17%

### Deworming

WHO recommends deworming in their current programs (2012, Deworming to combat the health and nutritional impact of soil-transmitted helminths, Biological, behavioural and contextual rationale). Soil-transmitted helminths, which include roundworms (*Ascaris lumbricoides*), whipworms (*Trichuris trichiura*) and hookworms (*Necator americanus* and *Ancylostoma duodenale*), are among the most common causes of infection in people who live in the developing world. WHO estimates that over 270 million preschool children and over 600 million school-age children are living in areas where these parasites are intensively transmitted, and are in need of treatment and preventive interventions. Soil-transmitted helminths are transmitted by eggs excreted in human faeces, which contaminate the soil in areas that lack adequate sanitation. People are infected through ingestion of infective eggs or larvae that contaminate food, hands or utensils, or by penetration of the skin by infective larvae that contaminate the soil. Since these parasites do not multiply in the human host, reinfection occurs only as a result of contact with infective stages in the environment.

Activities that are recommended by the WHO (2012) for the control of morbidity due to soil-transmitted helminth infections are simple and should be administered to children without previous individual diagnosis.

- Periodic drug treatment (deworming) to all children living in endemic areas (once a year when the prevalence of soil-transmitted helminth infections in the community is over 20%, and twice a year when the prevalence of soil-transmitted helminth infections in the community is over 50%). This intervention reduces morbidity by reducing the worm burden.
- Health and hygiene education reduces transmission and reinfection by encouraging healthy behaviors.
- Provision of adequate sanitation is also important but not always possible in resource-poor settings.

In general, Tanzania is still considered a country with a high prevalence (>50%) of soil-transmitted helminthiases (WHO, 2010, Working to overcome the global impact of neglected tropical diseases, First WHO report on neglected tropical diseases).

Of all children checked in the medical camp, 40% of the children reported to have received deworming treatment in the last 6 months (see table 7).

All children going to school in Mikochenie are considered to be in the FTK deworming program, which is considered to start in August 2014. All schools will be given deworming tablets and corresponding information on treatment by FTK. The recommended drugs (albendazole 400 mg or mebendazole 500 mg) are effective, inexpensive and easy to administer by non-medical personnel.

In Mikochenie, an active worm infection was suspected in 40 children (7%). This might be an underestimation, as no faeces examination was performed and diagnoses was based on anamneses. Highest prevalence was seen in Mikochenie Kuwbwa (30 children).

Simple ways of improving personal hygiene and sanitation through hand washing, nail trimming, wearing of shoes and use of a latrine and clear water supplies were encouraged. Although all members of a population can be infected by worms, those who are at most risk and would benefit most from preventive interventions are the pre-school (2-5 years), school age children, adolescent girls and women of childbearing age.



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

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total= 118		Total= 82		Total= 305		Total= 107	
	N	%	n	%	n	%	n	%	n	%
Anti-worm	246	40%	64	54%	31	38%	108	35%	43	40%
No anti-worm	368	60%	54	46%	50	61%	197	65%	64	60%
<b>Anti-worm per age</b>										
<=1 year	35	27%	7	33%	4	31%	16	22%	8	36%
>1 en <5 years	108	47%	31	60%	10	34%	49	48%	18	43%
<5 years	135	39%	34	51%	13	32%	63	37%	25	40%
>=5 en <=10 years	111	42%	30	60%	18	44%	45	34%	18	41%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%

Other diagnoses and referrals

Other diagnoses included dermatomycosis (54 children), carries (43), physiological heart murmur (16), infected wounds (9), psychomotoric retardation (9), epilepsy (6), pathological heart murmur and pneumonia (6). Details can be found in the table on diagnoses in the Annex.

If necessary, children were referred to TPC or CCBRT.

We referred 25 children to medical specialists in the TPC Hospital for further diagnoses and/or treatment. Furthermore, 16 children were referred to and seen by CCBRT.

In order to support follow-up by FD Kilimanjaro and TPC hospital, lists of children referred to TPC for a medical specialist or blood test after three months were send by MCC to Gerbert Rieks and James Ashire.

The children seen by CCBRT will be further seen by a specialist at CCBRT or at KCMC. These visits will be coordinated and supported by FTK.



We had several cases of epilepsy (6) which were referred by CCBRT to either TPC or KCMC.

One child from Kilimanjaro area visited the medical camp for investigated as it was suspected for cardiac problems. In the medical camp we saw a very weak child, with severe stunting, underweight and wasting and severe anemia. We suspect a heart failure. We referred this child through CCBRT to KCMC, to perform heart sonography and to make a treatment plan. In addition, we asked for provision of Plumpy'Nut to treat the

growth abnormalities. Follow-up was given by FTK, and further treatment and operation is planned in Dar-es-Salaam.

Several children with Down syndrome or psychomotoric retardation were referred to CCBRT for a week of intensive treatment and training of parents or for the KCMC orthopaedic workshop.

In addition, several children were referred through CCBRT /KCMC to visit the pediatrician for further diagnosis, for a so-called pathological murmur.

#### Conclusions and recommendations

In Mikochenie, we performed a medical camp for 615 children. Incidences of anaemia and growth abnormalities were equivalent to the figures in Mtakuja in 2009.

MCC is delighted to hear that there will be a TPC outreach program set up in the subvillages with a frequency of once per month and for children under five twice a month.

In addition to this, it is recommended to start education programs for mothers on mother/child care. FTK and MCC should investigate whether there are organizations with special educational programs for this purpose suitable for the Mikochenie area.

Several topics can be considered: improvement of child food and education on breast feeding and additional feeding and education of the HBC (e.g. implement community based strategies to promote healthy behavior during pregnancy, child birth, post-partum period and childhood).

Furthermore, FTK might set up an investigation on the presence and training of skilled birth attendants and mother and child care after birth.

Malaria is present in the Mikochenie area. Therefore, it is recommended to look for an organization who can provide mosquito nets.

MCC is very pleased with the deworming program set up by FTK in Mikochenie.

FTK will start with the program in August 2014, and will start with a learning session by one of the Community health workers and will be school based. However, it should be emphasized that an deworming program covering all children of at least two years of age and above should be considered, since the governmental deworming program did not reach the whole group.

Furthermore, MCC is very pleased with the fruit trees program initiated by FTK for the Mikochenie schools. Besides the children might benefit directly from these fruits in the future, it has also an educational value. One might consider to extend this program with green leafy vegetables and other nutritious foods.

It is highly recommended to further investigate the quality of drinking water. We emphasize that in order to fight the health problems of children, there is a need for safe water. The quality and safety of available water sources for drinking, washing, cooking and gardening is unknown and needs further investigation. Furthermore, we recommend investigation of the currently available drinking water, with special emphasis on the content of fluor because a high prevalence of children with fluorosis was noted.

We recommend further investigations of the higher incidence of chronic health problems seen in Masaini (e.g. anemia and growth abnormalities) when compared to the other subvillages. Sub-village specific health improving activities should be considered. FTK might consider a specific inventory for this sub village for food and hygiene habits, in order to set up this program. It might be helpful to invite the people from Masaini on a separate day, we might set up a provide specific attention for nutrition and hygiene during this day. FTK and MCC might discuss further investigation of eating and drinking habits of this subvillage, in order to give more specific information to the parents during the next medical camp.

One of the expected non-measured benefits of the medical camps is considered the transfer of knowledge. Knowledge about the importance of hygiene, deworming and nutritious foods. It is however difficult to measure the possible increase of knowledge, and MCC and FTK might work together on a new tool to capture this expected benefits of the medical camp.

We indicated some "example" families during the medical camp. These families were well dressed and the children were in good health. It is recommended that these families are visited and are interviewed, in order to learn why they are our examples and how they might contribute to improve other families.

For 2015, MCC recommends to have more attention to the announcement of the medical camp in the subvillages. Although in total 615 children visited the medical camp in five days, we feel that still a lot of children stayed at home. Next year announcers should be requested to visit the subvillages the day before the medical camp. A letter to the children at school is not considered sufficient. However, we need to highlight that MCC was thrilled by the presence of so many caretakers during the medical camp.

During the end-evaluation at location, FTK requested MCC to visit TPC hospital next year to discuss several special cases with TPC staff. MCC is willing to be available for this special visit for half a day next year, but would like to receive information on these cases from TPC upfront.



**Results Mtakuja**

During the 6th medical camp in Mtakuja, we performed a special program during a two day medical camp. The MCC carousel was adjusted in order to see as much children as possible, as a follow-up to the medical camps performed from 2009-2013. Only the children with a specific medical complaint, anaemia or growth abnormality were seen by the doctors. For a follow-up medical camp this new protocol was followed, but should be considered for our regular medical camps.

For Mtakuja it was the sixth medical camp, and in total 535 children visited the medical camp. Of all children, 73% of the children attended the medical camp also in 2013 (registration files of 2013 were found). Special attention was paid to the presence of caretakers during the medical camp, at the announcement of the medical camp and at registration.

Of all children 74% brought a caretaker and 24% was accompanied only by a teacher.

**Table 8: Number of checked children per day and geographical location**

Village/Date	24-07	25-07	Total
Josho	97		97
Mabatini	44	3	47
Mafuriko	10	158	168
Mbeya Kubwa	3	89	92
Remiti		45	45
Risavu	14	12	26
Upareni	60		60
<b>Total</b>	<b>228</b>	<b>307</b>	<b>535</b>

Details on the ages of children per sub village can be found in the appendix.

A short summary of the findings in the children of Mtakuja over the past years is given in the tables below. Details of all findings for anaemia and growth abnormalities can be found in the appendix and the previous medical reports of Mtakuja of the years 2009-2013.



Anaemia

The prevalence of anaemia in all children checked from 2009 to 2014 are given in table 9. The prevalence of children with a Hb < 5 mmol/L are given in table 10.

**Table 9: Anaemia in Mtakuja in 2009- 2014**

2009		2010		2011		2012		2013		2014	
445/1172	40%	449/1211	37%	527/1105	48%	593/1023	58%	380/907	42%	207/535	39%

**Table 10: Hb < 5 mmol/l in Mtakuja in 2009- 2014**

2009		2010		2011		2012		2013		2014	
75/1152	6%	68/1221	6%	92/1105	8%	88/1023	9%	26/906	3%	16/535	3%

General figures for anaemia are difficult to find, as general figures include areas where e.g. malaria is endemic, which is normally not the case in Mtakuja. General figures for Tanzania from internet search indicate a prevalence of 40-70% in children under five years of age.

The 2010 TDHS (Tanzania Demographic and Health Survey) tested haemoglobin levels of children age 6-59 months to determine anaemia prevalence. Nearly 6 in 10 Tanzanian children suffer from some degree of anaemia (haemoglobin <11.0 g/dl). The majority of children have moderate anaemia (29%) or mild anaemia (27%), while 2% have severe anaemia. Children age 9-11 months are most likely to have anaemia (81%).

In 2014, the highest prevalence of anaemia was seen in Remiti (53%); Remiti should be the highest prevalence in all years.

Considering the still high prevalence of anaemia in Mtakuja, we therefore recommend to support the school meal in the future, and also the addition of a vitamin C source to the school meal, e.g. a ¼ orange, lemon or tomato. Furthermore the culture of vegetables and fruit trees at the schools might be further supported.

For babies, we advised exclusive breastfeeding up to six months, then start with the introduction of normal food and we discussed the possibilities of donation of breast milk by another woman when the normal supply is lacking. We hope that the community health workers of Mtakuja will be able to share this knowledge in the future with the people of Mtakuja.

Growth abnormalities

The prevalence of underweight, wasting and stunting of all children checked from 2009 to 2014 are given in table 11.

**Table 11: Growth abnormalities in Mtakuja in 2009- 2014.**

	2009		2010		2011		2012		2013		2014	
Underweight	176/1179	15%	167/1221	14%	172/1216	14%	145/1014	14%	134/906	15%	108/531	20%
Stunting	251/1188	21%	152/1220	12%	191/1217	16%	161/1023	16%	149/906	16%	98/534	18%
Wasting	78/860	9%	103/752	14%	53/856	6%	55/683	8%	36/906	6%	35/321	11%

There are no clear trends seen in growth abnormalities between the groups of checked children in 2009 to 2014 and no positive effect of the efforts made in the medical camp and by FTK can be seen in the collected data. However, if you watch the children and talk with

their care takers during a walk in the villages or the medical camp you can see the change: hygiene has improved, (most of) the children are flourishing and the knowledge about health subjects has increased. These subjective observations are hard to catch in statistics. Besides this, one should keep in mind that the living conditions, as the availability of food and drinking water changes over the years, and even the age distribution in the groups of children over the years is not the same.

Although in the communications with parents and teachers we noticed a change in knowledge and awareness on nutritious foods, unfortunately, it remains a problem to buy nutritious fruits and vegetables by most of the villagers.

General figures for Tanzania indicate that 17% of children under the age of five are underweight, 44% are stunted, and 4% are wasted (UNICEF, 2009. State of the World's Children).

For children under five in Mtakuja, 18% of the children are underweight, 28% are stunted and 8% are wasted. As we pointed out in the above section, stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections. Maybe six years is too short to see statistic results of interventions. Underweight is mainly an indicator of low calorie intake. The fact that underweight went up in 2014, is, at least partly, a result of the problems with the maize harvest of last year.

Figures for stunting and wasting in Mtakuja are below the figures of the children of Mikochenie. However, the figure for underweight for Mtakuja is above the underweight figure of Mikochenie. The millennium development goal for underweight is 15%, unfortunately, Mtakuja does not meet this goal for children under 5.

We are grateful that currently, TPC in their outreach program, is coming monthly to Mtakuja to measure height and weight of the children under five years of age.

In addition, we hope that the cooking lessons and teaching on food for babies and young children will be further supported in the future. This is considered important for the health of the children in Mtakuja.

Additional education on nutritious food by community health workers specified for each subvillage, looking to possibilities to promote home gardening or increase participation in the agricultural project of FTK should be investigated in order to improve the malnutrition in the Mtakuja.

#### Deworming

In the last years a de-worming program was established in Tanzania where there is a high prevalence of these infections in (school-aged) children. This de-worming program doesn't have a 100% coverage. Of all children we saw during the medical camp this year, 24% reported receipt of deworming medication in the last 6 months. An active worm infection was suspected in 17 (3%) children. Health education on the spot was aimed at increasing awareness of worm transmission, the disabilities caused by intestinal helminth and the importance of the de-worming program every half year.

Also in Mtakuja, FTK starts this year with a deworming program. This means that twice per year deworming tablets will be given to all school children. Therefore, during the medical camp in 2014, all school-going children were not given deworming tablets, in order not to interfere with the FTK deworming program. According to FTK plans, all children in school in Mtakuja, will be given a deworming tablet in August 2014, and every 6 months thereafter.

Other diagnoses and referrals

Other diagnoses included dermatomycosis (11 children), carries (33), physiological heart murmur (3), infected wounds (4), scabies (8), malaria (3), psychomotoric retardation (3), epilepsy (2), pathological heart murmur (5) and pneumonia (6). Details can be found in the table on diagnoses in the Annex.

If necessary, children were referred to TPC or CCBRT. We referred 8 children to medical specialists in the TPC Hospital for further diagnoses and/or treatment. Furthermore, 9 children were referred to CCBRT.

The children seen by CCBRT will be further seen by a specialist at CCBRT or at KCMC. These visits will be coordinated and supported by FTK.

A boy of 9 months was diagnosed with palate schizis and severe malnutrition. This child was further supported by FTK and given a special pacifier. In the hospital special nutrition was given to treat the malnutrition, and an operation was planned.



Conclusions and recommendations

In Mtakuja, we performed a medical camp for 535 children, the sixth medical camp in this village. The medical camp was organized in order to see if the decreasing trends we were seeing for anaemia and growth abnormalities were actually there. Unfortunately, we could not conclude this for Mtakuja in general. This is mainly due to the fact that these parameters are influenced by the group of children we see every year, in addition to all other contribution factors as availability of nutritious foods.

Although MCC will not return to Mtakuja, we are grateful to the fact that there is a TPC outreach program in place and prevention clinic for the children under five in Mtakuja. Furthermore, we welcome the deworming program set up in Mtakuja for the future.

We recommend to further support mother-child care in Mtakuja. Several topics can be considered:

- Improvement of child food and education on breast feeding and additional feeding.
- Better access for mothers and children to health care (e.g. through outreach programmes by TPC and KCMC)
- Education of Community Health Workers for mother and child care: implement community based strategies to promote healthy behavior during pregnancy, child birth, post-partum period and childhood.
- Investigation of presence and training of skilled birth attendants and mother and child care after birth.
- Special welcome program for new inhabitants of the village of Mtakuja to make sure the gained knowledge is sustainable and the health infrastructure will be available for new inhabitants.

Of course we hope that the community health workers keep in function and will be involved in spreading the knowledge on health and food topics. As the figures on anaemia and growth abnormalities are still not within the ranges of a healthy population, there is still a lot of work to be done.

Also in Mtakuja malaria is present and it seems more frequent than it used to be. Therefore, it is recommended to look for an organization who can provide mosquito nets.

One of the expected non-measured benefits of the medical camps is considered the transfer of knowledge. Knowledge about the importance of hygiene, deworming and nutritious foods. Knowledge of the parents and children of hygiene, tooth brushing and healthy food seems improved. Based on the conversations with the caretakers, we noticed that the information on hygiene and food shared with them in the past years was still present. The overall hygiene was better and most of the children are brushing their teeth at least twice a day. Less acute infections were seen in 2014 when compared to the previous years, partly due to better hygiene and part due to the anti-worm treatment given by MCC last year and the Governmental program.

We recommend further investigations of the higher incidence of chronic health problems seen in Remiti and Josho (e.g. anemia and underweight) when compared to the other villages. Sub-village specific health improving activities should be set up.

We recommend to further support the social program set up by Stella Msarikie of FTK.

FKT might consider to send a request for a single follow-up check in the future in Mtakuja, e.g. after 5 years. Based on this follow-up check, we might evaluate the health situation in Mtakuja once more and provide FTK with additional recommendations.



**Last words:**

We are very grateful for all work performed by Gerbert, James, Stella, translators and helpers during the medical camps in Mikochenie and Mtakuja. We could not have performed our work without their presence and hard work. We know we are a demanding group, and the patience and focus of the translators and helpers is wonderful. We were also very pleased with the assistance of the HBC's during the medical camp in Mikochenie; their activities related to health care in Mikochenie should be encouraged! Furthermore, we also would like to thank TPC, CCBRT, TPC hospital, and KCMC hospital for their cooperation and enthusiasm. We would love to work together with them next year. In addition, we would like to thank Douwe de Vries of FEMI for his support during the year.

However, we need to stress that we are sad for not returning to Mtakuja next year. We still feel the health care in Mtakuja needs further improvement and that the villagers need further support in order to improve the health situation of the children. However, we hope that by support of FTK, the lower Moshi support project and the project of Suzanne Theuws (Run for Mtakuja), there will be further improvements in the future.

Iris van de Gevel and Karlien Bongers



Annex 1 – Detailed tables for Mikochenie

Table 1-1: Disease prevalence among all children per geographical location

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total= 118		Total= 82		Total= 305		Total= 107	
	N	%	n	%	n	%	n	%	n	%
Underweight	77	13%	4	3%	13	16%	36	12%	23	21%
Stunting	149	24%	31	26%	10	12%	71	23%	36	34%
Wasting	53	9%	2	2%	14	17%	23	8%	13	12%
Anaemia	244	40%	39	33%	52	63%	103	34%	48	45%
HIV pos.	2	0%	0	0%	0	0%	0	0%	2	2%
Malaria	6	1%	1	1%	1	1%	3	1%	0	0%
syndrome n.o.s.	2	0%	1	1%	1	1%	0	0%	0	0%
pneumonia (clinical)	6	1%	0	0%	1	1%	4	1%	1	1%
tuberculosis (clinical)	3	0%	0	0%	2	2%	0	0%	1	1%
Bronchitis	1	0%	0	0%	0	0%	1	0%	0	0%
BHR/asthma	1	0%	0	0%	0	0%	1	0%	0	0%
gardia (suspected)	3	0%	1	1%	0	0%	1	0%	1	1%
dysentaria	7	1%	1	1%	0	0%	4	1%	2	2%
acute diarrhea	5	1%	1	1%	1	1%	3	1%	0	0%
diarrhea without dehydration	4	1%	0	0%	0	0%	3	1%	1	1%
Constipation	9	1%	1	1%	0	0%	7	2%	1	1%
active worm infection	40	7%	3	3%	4	5%	30	10%	3	3%
otitis media acuta	3	0%	0	0%	0	0%	2	1%	1	1%
otitis media with effusion	3	0%	0	0%	1	1%	2	1%	0	0%
otitis externa	1	0%	0	0%	0	0%	1	0%	0	0%
(adeno)tonsillitis	5	1%	1	1%	0	0%	4	1%	0	0%
candida stomatitis	1	0%	0	0%	0	0%	1	0%	0	0%
other	3	0%	1	1%	0	0%	2	1%	0	0%
cariës n.o.s.	43	7%	6	5%	11	13%	20	7%	6	6%
fluorosis	25	4%	9	8%	6	7%	5	2%	5	5%
caries with pain	2	0%	0	0%	0	0%	1	0%	1	1%
wounds n.o.s.	4	1%	1	1%	1	1%	2	1%	0	0%
eczema n.o.s.	6	1%	3	3%	0	0%	3	1%	0	0%
dermatomycosis	54	9%	11	9%	7	9%	27	9%	9	8%

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total= 118		Total= 82		Total= 305		Total= 107	
	N	%	n	%	n	%	n	%	n	%
Impetigo/furunculosis	6	1%	0	0%	0	0%	4	1%	2	2%
scabies	4	1%	0	0%	0	0%	4	1%	0	0%
wounds infected,	9	1%	0	0%	1	1%	8	3%	0	0%
insect bite	1	0%	0	0%	0	0%	1	0%	0	0%
other (psoriasis etc)	2	0%	0	0%	0	0%	2	1%	0	0%
psychomotoric retardation	9	1%	2	2%	4	5%	1	0%	1	1%
epilepsy	6	1%	1	1%	2	2%	3	1%	0	0%
migraine/headache	1	0%	0	0%	0	0%	1	0%	0	0%
physiological murmur	16	3%	4	3%	3	4%	5	2%	4	4%
pathological murmur (suspected)	6	1%	0	0%	0	0%	4	1%	1	1%
keratoconjunctivitis	4	1%	0	0%	0	0%	3	1%	1	1%
epi/hypospadias	1	0%	0	0%	0	0%	1	0%	0	0%
inguinal hernia	1	0%	0	0%	0	0%	0	0%	1	1%
urinary infection	1	0%	0	0%	0	0%	1	0%	0	0%
old fracture	1	0%	0	0%	1	1%	0	0%	0	0%

Table 1-2: Treatment among all children per geographical location

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total= 118		Total= 82		Total= 305		Total= 107	
	N	%	n	%	n	%	n	%	n	%
child iron	81	13%	14	12%	28	34%	32	10%	7	7%
mother iron	34	6%	10	8%	2	2%	20	7%	1	1%
multivitamins	230	37%	36	31%	27	33%	107	35%	59	55%
anti-worm	203	33%	31	26%	32	39%	101	33%	38	36%
acute worm	33	5%	3	3%	2	2%	27	9%	1	1%
anti-scabies	4	1%	0	0%	0	0%	4	1%	0	0%
amoxicillin	20	3%	0	0%	2	2%	14	5%	4	4%
metranidazol	3	0%	1	1%	0	0%	1	0%	1	1%
co-trimoxazol	8	1%	1	1%	0	0%	4	1%	3	3%
ORS	1	0%	0	0%	0	0%	1	0%	0	0%
eardrops	2	0%	0	0%	0	0%	2	1%	0	0%
nystatine	3	0%	0	0%	0	0%	3	1%	0	0%
mupirocine=Bactroban	1	0%	0	0%	0	0%	0	0%	1	1%
hydrocortisone cream	11	2%	3	3%	1	1%	7	2%	0	0%
dactarin cream	19	3%	2	2%	0	0%	12	4%	5	5%
fusidin cream	12	2%	0	0%	2	2%	9	3%	1	1%
sudo cream	1	0%	0	0%	0	0%	1	0%	0	0%
iodine	4	1%	0	0%	0	0%	3	1%	1	1%
eyedrops	6	1%	0	0%	0	0%	5	2%	1	1%

Table 1-3: Follow-up of all children per geographical location

	Total		Kirungu		Masaini		Mikochenie Kubwa		Mikochenie Ndogo	
	615		Total=118		Total=82		Total=305		Total=107	
	N	%	n	%	n	%	n	%	n	%
Dentist	1	0%	0	0%	0	0%	0	0%	1	1%
Specialist in hospital	25	4%	3	3%	6	7%	11	4%	4	4%
Revisit	1	0%	0	0%	0	0%	0	0%	1	1%
Bloodtest after 3 months	31	5%	5	4%	8	10%	13	4%	4	4%
International organisation	16	3%	4	3%	4	5%	6	2%	1	1%

Annex 2 – Detailed tables for Mtakuja

Table 2-1: Summary of checked children per geographical location, age and gender – Mtakuja

Age	Total		Josho		Mabatini		Mafuriko	
	535		Total= 97		Total= 47		Total= 168	
	N	%	n	%	n	%	n	%
<=1 year	66	12%	15	15%	6	13%	17	10%
>1 en <5 years	154	29%	25	26%	9	19%	40	24%
<5 years	199	37%	35	36%	14	30%	52	31%
>=5 en <=10 years	333	62%	62	64%	33	70%	116	69%
>10 years	3	1%	0	0%	0	0%	0	0%
<b>Gender</b>								
Boy	264	49%	50	52%	27	57%	85	51%
Girl	270	50%	46	47%	20	43%	83	49%
Age	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total= 45		Total= 26		Total= 60	
	n	%	n	%	n	%	n	%
<=1 year	12	13%	6	13%	3	12%	7	12%
>1 en <5 years	30	33%	13	29%	6	23%	31	52%
<5 years	38	41%	19	42%	7	27%	34	57%
>=5 en <=10 years	54	59%	23	51%	19	73%	26	43%
>10 years	0	0%	3	7%	0	0%	0	0%
<b>Gender</b>								
Boy	42	46%	23	51%	10	38%	27	45%
Girl	50	54%	22	49%	16	62%	33	55%

Table 2-2: Prevalence of weight/age at or under P3 (underweight) per geographical location by age and gender

	Total		Josho		Mabatini		Mafuriko	
	535		Total= 97		Total = 47		Total= 168	
	N	%	n	%	n	%	n	%
Underweight	108	20%	25	26%	7	15%	39	23%
No underweight	423	80%	72	74%	39	85%	129	77%
Unknown	4	1%	0	0%	1	2%	0	0%
<b>Underweight children per age</b>								
<=1 year	10	15%	4	27%	2	33%	2	12%
>1 en <5 years	27	18%	6	24%	2	22%	10	25%
<5 years	35	18%	9	26%	4	29%	11	21%
>=5 en <=10 years	73	22%	16	26%	3	9%	28	24%
>10 years	0	0%	0	0%	0	0%	0	0%
<b>Underweight children per gender</b>								
Boy	68	26%	16	32%	6	22%	23	27%
Girl	40	15%	9	20%	1	5%	16	19%
	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total= 45		Total = 26		Total= 60	
	n	%	n	%	n	%	n	%
Underweight	19	21%	9	21%	7	27%	2	3%
No underweight	73	79%	33	79%	19	73%	58	97%
Unknown	0	0%	3	7%	0	0%	0	0%
<b>Underweight children per age</b>								
<=1 year	2	17%	0	0%	0	0%	0	0%
>1 en <5 years	1	3%	5	38%	2	33%	1	3%
<5 years	3	8%	5	26%	2	29%	1	3%
>=5 en <=10 years	16	30%	4	17%	5	26%	1	4%
>10 years	0	0%	0	0%	0	0%	0	0%
<b>Underweight children per gender</b>								
Boy	13	31%	6	29%	3	30%	1	4%
Girl	6	12%	3	14%	4	25%	1	3%

Table 2-3: Prevalence of length/age at or under P3 (stunting) per geographical location by age and gender

	Total		Josho		Mabatini		Mafuriko	
	535		Total = 97		Total = 47		Total= 168	
	N	%	n	%	n	%	n	%
Stunting	98	18%	15	15%	9	20%	37	22%
No stunting	436	82%	82	85%	37	80%	131	78%
Unknown	1	0%	0	0%	1	2%	0	0%
<b>Stunting children per age</b>								
<=1 year	17	26%	3	20%	3	50%	6	35%
>1 en <5 years	41	27%	8	32%	1	11%	13	33%
<5 years	55	28%	10	29%	4	29%	18	35%
>=5 en <=10 years	43	13%	5	8%	5	16%	19	16%
>10 years	0	0%	0	0%	0	0%	0	0%
<b>Stunting children per gender</b>								
Boy	53	20%	8	16%	6	22%	19	22%
Girl	45	17%	7	15%	3	16%	18	22%
	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total = 45		Total = 26		Total= 60	
	n	%	n	%	n	%	n	%
Stunting	18	20%	9	20%	5	19%	5	8%
No stunting	74	80%	36	80%	21	81%	55	92%
Unknown	0	0%	0	0%	0	0%	0	0%
<b>Stunting children per age</b>								
<=1 year	4	33%	1	17%	0	0%	0	0%
>1 en <5 years	7	23%	6	46%	2	33%	4	13%
<5 years	10	26%	7	37%	2	29%	4	12%
>=5 en <=10 years	8	15%	2	9%	3	16%	1	4%
>10 years	0	0%	0	0%	0	0%	0%	0%
<b>Stunting children per gender</b>								
Boy	7	17%	6	26%	3	30%	4	15%
Girl	11	22%	3	14%	2	13%	1	3%



Table 2-4: Prevalence of weight/length at or under P3 (wasting) per geographical location by age and gender

	Total		Josho		Mabatini		Mafuriko	
	535		Total = 97		Total = 47		Total= 168	
	N	%	n	%	n	%	n	%
Wasting	35	11%	12	20%	1	4%	6	6%
No wasting	286	89%	49	80%	25	96%	89	94%
Unknown	214	40%	36	37%	21	45%	73	43%
<b>Wasting children per age</b>								
<=1 year	5	8%	3	20%	1	17%	1	6%
>1 en <5 years	13	8%	4	16%	0	0%	3	8%
<5 years	16	8%	6	17%	1	7%	3	6%
>=5 en <=10 years	19	15%	6	23%	0	0%	3	7%
>10 years	0	0%	0	0%	0	0%	0	0%
<b>Wasting children per gender</b>								
Boy	19	12%	8	24%	1	5%	2	5%
Girl	16	10%	4	15%	0	0%	4	8%
	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total = 45		Total = 26		Total= 60	
	n	%	n	%	n	%	n	%
Wasting	7	12%	4	14%	1	8%	4	10%
No wasting	51	88%	25	86%	11	92%	36	90%
Unknown	34	37%	16	36%	14	54%	20	33%
<b>Wasting children per age</b>								
<=1 year	0	0%	0	0%	0	0%	0	0%
>1 en <5 years	2	7%	1	8%	0	0%	3	10%
<5 years	2	5%	1	5%	0	0%	3	9%
>=5 en <=10 years	5	25%	3	30%	1	20%	1	14%
>10 years	0	0%	0	0%	0	0%	0	0%
<b>Wasting children per gender</b>								
Boy	2	9%	3	23%	0	0%	3	14%
Girl	5	14%	1	6%	1	20%	1	5%

Table 2-5: Prevalence of anaemia per geographical location by age and gender

	Total		Josho		Mabatini		Mafuriko	
	535		Total = 97		Total = 47		Total= 168	
	N	%	n	%	n	%	n	%
Anaemia	207	39%	33	34%	16	34%	68	40%
No anaemia	327	61%	64	66%	31	66%	100	60%
Unknown	1	0%	0	0%	0	0%	0	0%
Hb <5,0 mmol	16	3%	4	4%	2	4%	4	2%
<b>Anaemia per age</b>								
<=1 year	36	55%	6	40%	2	33%	12	71%
>1 en <5 years	70	45%	12	48%	4	44%	20	50%
<5 years	93	47%	15	43%	6	43%	28	54%
>=5 en <=10 years	113	34%	18	29%	10	30%	40	34%
>10 years	1	33%	0	0%	0	0%	0	0%
<b>Anaemia per gender</b>								
Boy	110	42%	20	40%	11	41%	37	44%
Girl	97	36%	13	28%	5	25%	31	37%
	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total = 45		Total = 26		Total= 60	
	n	%	n	%	n	%	n	%
Anaemia	35	38%	24	53%	9	35%	22	37%
No anaemia	57	62%	21	47%	17	65%	37	62%
Unknown	0	0%	0	0%	0	0%	1	2%
Hb <5,0 mmol	1	1%	3	7%	1	4%	1	2%
<b>Anaemia per age</b>								
<=1 year	6	50%	5	83%	3	100%	2	29%
>1 en <5 years	11	37%	7	54%	3	50%	13	42%
<5 years	15	39%	12	63%	4	57%	13	38%
>=5 en <=10 years	20	37%	11	48%	5	26%	9	35%
>10 years	0	0%	1	33%	0	0%	0	0%
<b>Anaemia per gender</b>								
Boy	17	40%	13	57%	4	40%	8	30%
Girl	18	36%	11	50%	5	31%	14	42%

**Table 2-6: Prevalence preventive anti-worm treatment in the last half-year per geographical location by age and gender**

	Total		Josho		Mabatini		Mafuriko	
	535		Total= 97		Total = 47		Total= 168	
	N	%	n	%	n	%	n	%
Anti-worm	129	24%	3	3%	4	9%	62	37%
No anti-worm	405	76%	93	96%	43	91%	106	63%
<b>Anti-worm per age</b>								
<=1 year	9	14%	2	13%	0	0%	3	18%
>1 en <5 years	34	22%	2	8%	0	0%	15	38%
<5 years	38	19%	3	9%	0	0%	16	31%
>=5 en <=10 years	88	26%	0	0%	4	12%	46	40%
>10 years	3	100%	0	0%	0	0%	0	0%
	Mbeya Kubwa		Remiti		Risavu		Upareni	
	Total= 92		Total= 45		Total = 26		Total= 60	
	n	%	n	%	n	%	n	%
Anti-worm	38	41%	9	20%	3	12%	10	17%
No anti-worm	54	59%	36	80%	23	88%	50	83%
<b>Anti-worm per age</b>								
<=1 year	3	25%	0	0%	0	0%	1	14%
>1 en <5 years	9	30%	1	8%	0	0%	7	23%
<5 years	11	29%	1	5%	0	0%	7	21%
>=5 en <=10 years	27	50%	5	22%	3	16%	3	12%
>10 years	0	0%	3	100%	0	0%	0	0%



Table 2-7: Disease prevalence among all children per geographical location

	Total		Josho		Mabatini		Mafuriko		Mbeya Kubwa		Remiti		Risavu		Upareni	
	535		97		47		168		92		45		26		60	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Underweigh †	108	20%	25	26%	7	15%	39	23%	19	21%	9	20%	7	27%	2	3%
Stunting	98	18%	15	15%	9	19%	37	22%	18	20%	9	20%	5	19%	5	8%
Wasting	35	7%	12	12%	1	2%	6	4%	7	8%	4	9%	1	4%	4	7%
Anaemia	207	39%	33	34%	16	34%	68	40%	35	38%	24	53%	9	35%	22	37%
Malaria	3	1%	2	2%	0	0%	0	0%	0	0%	1	2%	0	0%	0	0%
pneumonia (clinical)	6	1%	0	0%	1	2%	1	1%	1	1%	0	0%	2	8%	1	2%
tuberculosis (clinical)	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
Bronchitis	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	2%
BHR/asthma	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
dysentheria	2	0%	1	1%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%
diarrhoea	4	1%	1	1%	0	0%	2	1%	1	1%	0	0%	0	0%	0	0%
Constipation	3	1%	0	0%	0	0%	1	1%	2	2%	0	0%	0	0%	0	0%
active worm infection	17	3%	6	6%	1	2%	3	2%	2	2%	1	2%	2	8%	2	3%
otitis media acuta	2	0%	1	1%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
otitis media with effusion	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
otitis externa	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
(adeno)tonsillitis	3	1%	1	1%	0	0%	0	0%	1	1%	0	0%	1	4%	0	0%
cariës n.o.s.	33	6%	3	3%	4	9%	11	7%	8	9%	3	7%	3	12%	1	2%
Fluorosis	34	6%	5	5%	4	9%	17	10%	4	4%	1	2%	1	4%	2	3%
caries with pain	3	1%	1	1%	0	0%	0	0%	0	0%	2	4%	0	0%	0	0%
wounds n.o.s.	2	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	1	2%
eczema n.o.s.	8	1%	1	1%	1	2%	3	2%	1	1%	0	0%	1	4%	1	2%
Dermatomycosis	11	2%	2	2%	0	0%	3	2%	3	3%	1	2%	1	4%	1	2%
Impetigo/furunculosis	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%

	Total		Josho		Mabatini		Mafuriko		Mbeya Kubwa		Remiti		Risavu		Upareni	
	535		97		47		168		92		45		26		60	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Scabies	7	1%	0	0%	0	0%	5	3%	2	2%	0	0%	0	0%	0	0%
wounds infected,	4	1%	0	0%	0	0%	4	2%	0	0%	0	0%	0	0%	0	0%
other (psoriasis etc)	2	0%	0	0%	0	0%	1	1%	0	0%	1	2%	0	0%	0	0%
psychomotoric retardation	3	1%	1	1%	0	0%	0	0%	2	2%	0	0%	0	0%	0	0%
Hypertonia	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Epilepsy	2	0%	1	1%	1	2%	0	0%	0	0%	0	0%	0	0%	0	0%
migraine/headache	2	0%	0	0%	0	0%	0	0%	0	0%	1	2%	0	0%	1	2%
physiological murmur	3	1%	1	1%	0	0%	1	1%	0	0%	0	0%	0	0%	1	2%
pathological murmur (suspected)	5	1%	0	0%	1	2%	3	2%	0	0%	1	2%	0	0%	0	0%
Keratoconjunctivitis	3	1%	1	1%	0	0%	0	0%	0	0%	1	2%	0	0%	1	2%
Diabetes	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
new fracture	1	0%	0	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%

Table 2-8: Treatment among all children per geographical location

	Total		Josho		Mabatini		Mafuriko		Mbeya Kubwa		Remiti		Risavu		Upareni	
	535		97		47		168		92		45		26		60	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
child iron	105	20%	10	10%	12	26%	27	16%	22	24%	14	31%	4	15%	16	27%
mother iron	14	3%	1	1%	3	6%	5	3%	2	2%	3	7%	0	0%	0	0%
multivitamins	156	29%	38	39%	9	19%	54	32%	21	23%	13	29%	9	35%	12	20%
anti-worm	123	23%	23	24%	9	19%	32	19%	18	20%	16	36%	6	23%	19	32%
acute worm	15	3%	5	5%	0	0%	3	2%	3	3%	0	0%	2	8%	2	3%
anti-scabies	4	1%	0	0%	0	0%	2	1%	2	2%	0	0%	0	0%	0	0%

	Total		Josho		Mabatini		Mafuriko		Mbeya Kubwa		Remiti		Risavu		Upareni	
	535		97		47		168		92		45		26		60	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
amoxicillin	13	2%	3	3%	1	2%	2	1%	2	2%	0	0%	3	12%	2	3%
augmentin	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
co-trim	3	1%	1	1%	0	0%	1	1%	1	1%	0	0%	0	0%	0	0%
ORS	1	0%	0	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%
eardrops	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
nystatine	1	0%	0	0%	0	0%	0	0%	0	0%	1	2%	0	0%	0	0%
hydrocortisone cream	9	2%	0	0%	1	2%	4	2%	1	1%	0	0%	2	8%	1	2%
dactarin cream	3	1%	1	1%	0	0%	0	0%	0	0%	1	2%	0	0%	1	2%
fusidin cream	7	1%	0	0%	0	0%	4	2%	1	1%	0	0%	0	0%	2	3%
iodine	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	2%
eyedrops	4	1%	1	1%	0	0%	0	0%	0	0%	1	2%	0	0%	2	3%