Medical Checks for Children

Medical Report
Tanzania Mikochenie 2015

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Introduction:
In the third week of August 2015 Medical Checks for Children (MCC) visited Tanzania for the seventh time, several villages in the North of Tanzania (Africa). The MCC team checked and treated free of cost 798 children of Mikocheni. The medical camp was organized for six days from 18 to 23 August.

The MCC team consisted of ten members from The Netherlands: Leanne de Vetten (medical-end-responsible and mission leader, pediatrician), Iris van de Gevel (organization-end-responsible, toxicologist), Femke Groenveld (emergency doctor), Yvette Bos- van Asperen (pediatric resident), Eryn Liem (pediatrician), Larissa Mous (medical doctor), Margo Schrieken (general practitioner), Nel Mocking (mediator), Veronique Schram (Education advisor) and Marike Meulemeester (psychological assistant).

The medical checks were organized in close cooperation with NGO FT Kilimanjaro with the aim to eradicate poverty from the community of Mikocheni.
The village Mikocheni is located in the Kilimanjaro Region of northern Tanzania. The nearest hospital is Tanganyika Planting Company (TPC) hospital, approximately 15-20 km from Mikocheni.
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.

The cooperation of FT Kilimanjaro (FTK) (in person of Gerbert Rieks, Joris de Vries, 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 six days in three sub villages: Mikocheni Ndogo, Mikocheni Kubwa (including Masaini) and Kirungu (including Chemchem and Mikocheni Samanga). During the free of costs medical checks, the children were checked following the MCC carrousel:

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.
HIV counseling was given to all caretakers (voluntary), but unfortunately no HIV tests were available at the time of the medical camp. On medical indication, a malaria test and an urine test could be performed on the spot.

Results Mikocheni

In Mikochenie, we saw in total 798 children. For Mikocheni Ndogo it was the third medical camp, for Mikocheni Kubwa and Kirungu it was the second medical camp and for Chemchem it was the first.
Due to flood, all registration files of last year were lost, so no previous information of the children was available to the medical doctors. Re-visit could only be requested at the administration desk.
Of the children of Mikocheni Ndogo, 61% of the children attended the medical camp also last year; this was 39% for Mikocheni Kubwa, 33% for Masaini and 51% for Kirungu. Considering the high numbers of children coming to the Mikocheni Ndogo, Mikocheni Kubwa and Kirungu medical camp, when compared to last year, we feel that the numbers are an underestimation.

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 (779, 98%) 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

	18-08-15	19-08-15	20-08-15	21-08-15	22-08-15	23-08-15	Total
Chemchem[1]	0	0	0	0	12	24	36
Kirungu	0	0	0	0	52	128	180
Masaini	0	0	31	11	0	0	42
Mikocheni Kubwa	0	185	141	90	2	0	418
Mikocheni Ndogo	121	0	1	0	0	0	122
Total	**121**	**185**	**173**	**101**	**66**	**152**	**798**

The number of children from Masaini is low when compared to last year (82), which might be due to underreporting at the administration desk. More attention should be paid next year to correct administration of the sub-village, as this is important for the evaluation of the data, but more importantly to be able to trace the children after the medical camp for re-check or additional attention.

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).

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total=36		Total=180		Total=42		Total=418		Total=122	
Age	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**N**	**%**
<=1 year	174	22%	7	19%	33	18%	10	24%	95	23%	29	24%
>1 en <5 years	238	30%	14	39%	59	33%	11	26%	114	27%	40	33%
<5 years	412	52%	21	58%	92	51%	21	50%	209	50%	69	57%
>=5 en <=10 years	374	47%	15	42%	84	47%	21	50%	203	49%	51	42%
>10 years	12	2%	0	0%	4	2%	0	0%	6	1%	2	2%
Gender												
Boy	388	49%	16	44%	84	47%	20	48%	212	51%	56	46%
Girl	409	51%	20	56%	96	53%	22	52%	205	49%	66	54%

In total 40% of the 798 children were anaemic (see table 3, in 2014 also 40%). The highest prevalence of anaemia was seen in Mikocheni Ndogo (61%), and in Masaini (52%). 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 years or at the medical camp in 2016, it is recommended to investigate the food and drinking habits of all sub-villages. In Mikochenie Ndogo, there were travelling masai coming to the medical camp and a slightly higher number of children < 5 year were seen, when compared to Mikocheni Kubwa and Kirungu, which might have led to a higher prevalence of anaemia.

[1] Including children from Mikocheni Samanga

All children with anaemia were treated with iron or multivitamin.

A total of 41 (5%) children had a Hb below 5 mmol/l (compared to 28 (5%) in 2014). 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 (5 children were referred).

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total = 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	N	%	n	%	n	%	n	%
Anaemia	318	40%	11	31%	54	30%	22	52%	157	38%	74	61%
No anaemia	466	58%	24	67%	124	69%	18	43%	253	61%	47	39%
Unknown	6	1%	0	0%	0	0%	1	2%	5	1%	0	0%
Hb <5,0 mmol	41	5%	0	0%	1	1%	4	10%	25	6%	11	9%
Anaemia per age												
<=1 year	95	55%	3	43%	16	48%	6	60%	51	54%	19	66%
>1 en <5 years	105	44%	3	21%	22	37%	7	64%	47	41%	26	65%
<5 years	200	49%	6	29%	38	41%	13	62%	98	47%	45	65%
>=5 en <=10 years	115	31%	5	33%	16	19%	9	43%	58	29%	27	53%
>10 years	3	25%	0	0%	0	0%	0	0%	1	17%	2	100%
Anaemia per gender												
Boy	164	42%	5	31%	30	36%	15	75%	83	39%	31	55%
Girl	153	37%	6	30%	24	25%	7	32%	73	36%	43	65%

During the medical check-ups, we gave nutritional advise to all children and their guardians 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 planned for Kirungu, children might benefit from the school gardens and trees to be planted at the school. 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. From 47 malaria tests, 3 tested positive (6 out of 59 in 2014).
A HIV counsellor was HIV was present during the medical camp. All parents received counselling. Unfortunately, no HIV tests were available in Tanzania this year. All efforts were taken to get the HIV tests from TPC hospital or from pharmacies in Moshi, but the HIV tests were not available (Medical Stored Department stopped distribution). As in 2014 7 out of 87 HIV tests were positive, we would like to stress the importance to order the HIV tests in time for the medical camp in 2016.

In total 17% (2014: 13%) of the children in Mikochenie had underweight, 17% (2014: 24%) were stunted and 11% (2014: 10%) wasted. Details can be found in tables 4, 5 and 6.

Recent figures of the WHO (WHO World statistics 2015) indicate for Tanzania for children < 5 years 13.4% underweight, 34.7% wasting and 3.8% stunting. The millennium development goal for underweight is 15%.
For children under five in Mikochenie 17% of the children are underweighted, 22% are wasted and 10% are stunted.
The children of Mikocheni do slightly worse when compared to the overall figures for underweight and stunting and slightly better for wasting.

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.

Additional attention might be paid to availability of nutritious food in Mikocheni. Furthermore, advises on hygiene and anti-worm treatment, are of importance to prevent gastro-intestinal infections leading to growth abnormalities.

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total = 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	n	%	n	%	n	%	n	%
Underweight	133	17%	8	22%	30	17%	5	12%	73	18%	17	14%
No underweight	653	83%	28	78%	147	83%	37	88%	338	82%	103	86%
Unknown	11	1%	0	0%	3	2%	0	0%	6	1%	2	2%
Underweight children per age												
<=1 year	17	10%	1	14%	6	18%	1	10%	8	8%	1	3%
>1 en <5 years	55	23%	4	29%	17	29%	1	9%	27	24%	6	15%
<5 years	72	17%	5	24%	23	25%	2	10%	35	17%	7	10%
>=5 en <=10 years	61	16%	3	20%	7	8%	3	14%	38	19%	10	20%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Underweight children per gender												
Boy	68	18%	2	13%	19	23%	3	15%	39	19%	5	9%
Girl	65	16%	6	30%	11	12%	2	9%	34	17%	12	18%

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total = 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	n	%	n	%	n	%	n	%
Stunting	133	17%	6	17%	30	17%	3	7%	78	19%	16	13%
No stunting	661	83%	30	83%	149	83%	39	93%	338	81%	105	87%
Unknown	3	0%	0	0%	1	1%	0	0%	1	0%	1	1%
Stunting children per age												
<=1 year	33	19%	2	29%	7	21%	1	10%	22	23%	1	3%
>1 en <5 years	56	24%	2	14%	15	25%	1	9%	32	28%	6	15%
<5 years	89	22%	4	19%	22	24%	2	10%	54	26%	7	10%
>=5 en <=10 years	42	11%	2	13%	7	8%	1	5%	23	11%	9	18%
>10 years	2	22%	0	0%	1	33%	0	0%	1	20%	0	0%
Stunting children per gender												
Boy	72	19%	1	6%	20	24%	2	10%	43	20%	6	11%
Girl	61	15%	5	25%	10	10%	1	5%	35	17%	10	15%

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total = 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	n	%	n	%	n	%	n	%
Wasting	77	11%	2	6%	16	11%	4	12%	47	13%	8	8%
No wasting	593	88%	31	94%	129	89%	29	88%	314	87%	90	92%
Unknown	126	16%	3	8%	35	19%	9	21%	55	13%	24	20%
Wasting children per age												
<=1 year	11	6%	0	0%	2	6%	1	10%	7	7%	1	3%
>1 en <5 years	31	13%	2	14%	9	15%	1	9%	14	12%	5	13%
<5 years	42	10%	2	10%	11	12%	2	10%	21	10%	6	9%
>=5 en <=10 years	35	13%	0	0%	5	10%	2	17%	26	17%	2	6%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Wasting children per gender												
Boy	34	10%	0	0%	6	8%	2	13%	23	12%	3	7%
Girl	43	13%	2	11%	10	14%	2	12%	24	14%	5	9%

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.

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).

FTK implemented a deworming program in Mikocheni. In May 2015, > 3500 children received a deworming tablet. The programme was done for the schools, mainly for all children > 5 years. All schools were 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 Mikocheni also the District Medical Office performed a deworming campaign: in May 2015 for all children deworming tablets were distributed.

Of all children checked in the medical camp, 51% (2014: 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.

The highest coverage of deworming was surprisingly seen in Mikocheni Ndogo, where there is no primary school (nursery starts in 2015).
In Mikochenie, an active worm infection was suspected in 51 children (6%). This might be an underestimation, as no faeces examination was performed and diagnoses was based on anamneses. Highest prevalence was seen in Mikochenie Kuwbwa and Kirungu.
Seven children were diagnosed with dysenteria, 6 with diarrhea and 1 with gardia (suspected).

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total = 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	N	%	N	%	n	%	n	%
Anti-worm	405	51%	16	44%	83	46%	14	33%	216	52%	76	62%
No anti-worm	388	49%	20	56%	97	54%	28	67%	198	47%	45	37%
Anti-worm per age												
<=1 year	39	22%	2	29%	6	18%	1	10%	21	22%	9	31%
>1 en <5 years	109	46%	6	43%	23	39%	2	18%	47	41%	31	78%
<5 years	148	36%	8	38%	29	32%	3	14%	68	33%	40	58%
>=5 en <=10 years	249	67%	8	53%	53	63%	11	52%	142	70%	35	69%
>10 years	8	67%	0	0%	1	25%	0	0%	6	100%	1	50%

Analyses were made of children receiving antiworm treatment in last 6 months, in 2014 and in 2015, and in 2015 visiting for the second time (in 2014 and 2015).

Table 7b: Prevalence preventive anti-worm treatment in the last half-year per year

Location	Total 2014	Total 2015	2015 , 2nd time
Total	40%	51%	72%
Mikocheni Ndogo	40%	62%	85%

In 2014 and 2015 the local programs were already established, but we see an increase in the children actually receiving the tablets. It can be concluded that the awareness of the importance of receiving deworming treatment has been improved over the last year.

Other diagnoses and referrals

Other diagnoses included dermatomycosis (66 children), clinical signs of vitamin deficit (43), physiological heart murmur (13), infected wounds (9), eczema (14), psychomotoric retardation (2, possibly under reported, since 9 in 2014), epilepsy (3), pathological heart murmur (2), pneumonia (13), carries (56) and fluorosis (124). Details can be found in the table on diagnoses in the Annex.

If necessary, children were referred to TPC or CCBRT.
We referred 22 children to medical specialists in the TPC Hospital for further diagnoses and/or treatment, e.g. for suspected HIV, pathological heart murmur, severe anemia treatment, phimosis, strabismus or malaria treatment. Furthermore, 20 children were referred to and seen by CCBRT (16 in 2014), part of the children were already known by CCBRT.
Furthermore, we identified 13 children who might need more attention, through a social program or feeding program, e.g. for neglected children, orphans or extremely poor parents. The village managers and HBC's were requested to visit these families during the year to further discuss the situation and for follow-up.

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.

Most of 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. Some of the children are referred to CCBRT for a week of intensive treatment and training of parents.

For two children a wheelchair was sponsored by MCC team members, and for one child special shoes were sponsored.

Conclusions and recommendations

In Mikochenie, we performed a medical camp for 798 children.

MCC is delighted to hear that there is a TPC outreach program in place in the sub-villages 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. Several topics can be considered: improvement of child food, education on breast feeding and additional feeding, education on hygiene and importance of deworming and education of the HBC (e.g. first aid training).

We would recommend to provide the HBC of Mikocheni Ndogo with a first aid box, in order to help the people from this remove village lacking a dispensary. The first aid box might be accompanied by an inventory list and distribution list. Contents of the first aid kit might be discussed with the HBC and TPC hospital (o.a. gloves, gauze, antiseptic wipes, tape, hand sanitizer, bandage, scissors, triangular bandage, ORS). First aid training might also be considered for the HBCs.
In addition, we would recommend to train the HBC or FTK workers embedded in the Mikocheni area in he coming year in health care topics, e.g. nutrition, mother-child care, to improve their health motivation skills.
We would welcome further cooperation with TPC hospital, for instance if Tanzanian (local, e.g. TPC hospital) health officers to join the medical camp next year, for mutual knowledge transfer.

MCC is very pleased with the deworming program set up by FTK in Mikocheni. This deworming program is school based. There is also a deworming program done by the District. However, still not all children received deworming treatment (approximately 50%). Therefore, we would recommend to further discuss deworming with the DMO, and investigate how the children of at least two years of age and above can be reached, in order to have a more overall coverage of the children in Mikocheni.

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. In order to keep the knowledge in the sub-village, we would encourage to add translators living in the sub-villages.

As a high incidence of anemia and growth abnormalities remains present in Masaini, we would recommend to pay special attention to this sub-village, with regard to the education programs. It would also be helpful to have HBC providing extra education on food and hygiene habits as well as emphasizing the importance of deworming. It might be helpful to include more Masai translators to the medical camp.

For 2016, MCC recommends to have more attention to the planning of the medical camp in the subvillages and take into consideration other activities in the area and subvillages. Although in total 798 children visited the medical camp in six days, we feel that still a lot of children stayed at home. However, we need to highlight that MCC was thrilled by the presence of so many caretakers during the medical camp.

For 2016, we would like to have more cooperation with the village manager of Chemchem, in order to learn on the health and nutrious issues in Chemchem, and the social aspects and living conditions in Chemchem. For this purpose it would also be good to have the medical camp located in Chemchem, in order to make the visit to the medical camp more easy for the villages, but also for MCC to learn about the specific location and compare with the other sub villages.

Last words:
We are very grateful for all work performed by Gerbert, Joris, James, Stella, translators and helpers during the medical camps in Mikocheni. We could not have performed our work without their presence and hard work. We were also very pleased with the assistance of the three HBC's during the medical camp in Mikochenie; their activities related to health care in Mikocheni should be encouraged!
The cooperation with TPC, TPC hospital, CCBRT and KCMC hospital is of greatest importance for all the children that need additional help. We are grateful for the efforts of FTK to keep all parties united.

Although much improvement is still needed in the general health care of the children of Mikocheni, Kirungu and Chemchem, we feel confident that a lot will be achieved in the following years. We would therefore like to thank all people of FTK, TPC, TPC hospital and CCBRT for their enthusiasm and cooperation.

Iris van de Gevel and Leanne de Vetten

Annex 1 – Detailed tables for Mikocheni

Table Annex 1 – 1: Disease prevalence among all children per geographical location

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total= 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	N	%	n	%	N	%	n	%
Underweight	133	17%	8	22%	30	17%	5	12%	73	17%	17	14%
Stunting	133	17%	6	17%	30	17%	3	7%	78	19%	16	13%
Wasting	77	10%	2	6%	16	9%	4	10%	47	11%	8	7%
Anaemia	318	40%	11	31%	54	30%	22	52%	157	38%	74	61%
aids	2	0%	0	0%	0	0%	0	0%	2	0%	0	0%
Malaria (suspected)	4	1%	0	0%	1	1%	0	0%	1	0%	2	2%
vitamin deficit (clinical signs)	43	5%	0	0%	4	2%	2	5%	30	7%	7	6%
syndrome n.o.s.	3	0%	0	0%	1	1%	0	0%	2	0%	0	0%
pneumonia (clinical)	13	2%	0	0%	3	2%	2	5%	8	2%	0	0%
pneumonia (X-ray confirmed)	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
tuberculosis (X-ray confirmed)	1	0%	0	0%	0	0%	1	2%	0	0%	0	0%
BHR/asthma	3	0%	0	0%	0	0%	0	0%	3	1%	0	0%
gardia (suspected)	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
dysenteria	7	1%	0	0%	1	1%	0	0%	3	1%	3	2%
dehydration : acute diarrhoea	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
diarrhoea without dehydration	5	1%	0	0%	1	1%	1	2%	3	1%	0	0%
constipation	11	1%	0	0%	7	4%	0	0%	4	1%	0	0%
active worm infection	51	6%	1	3%	18	10%	2	5%	21	5%	9	7%
active lintworm	1	0%	0	0%	0	0%	0	0%	1	0%	0	0%
otitis media acuta	2	0%	0	0%	0	0%	1	2%	0	0%	1	1%
otitis media with effusion	6	1%	0	0%	2	1%	0	0%	3	1%	1	1%
otitis externa	3	0%	0	0%	2	1%	0	0%	0	0%	1	1%
(adeno)tonsillitis	3	0%	0	0%	0	0%	0	0%	3	1%	0	0%
candida stomatitis	1	0%	0	0%	0	0%	0	0%	1	0%	0	0%
hearing impairment	3	0%	0	0%	0	0%	0	0%	1	0%	2	2%
other	22	3%	4	11%	10	6%	0	0%	8	2%	0	0%
cariës n.o.s.	56	7%	0	0%	24	13%	2	5%	26	6%	4	3%
Fluorosis	124	16%	7	19%	39	22%	6	14%	62	15%	10	8%
caries with pain	4	1%	0	0%	2	1%	0	0%	1	0%	1	1%
wounds n.o.s.	2	0%	0	0%	0	0%	0	0%	2	0%	0	0%
eczema n.o.s.	14	2%	0	0%	4	2%	1	2%	6	1%	3	2%
dermatomycosis	66	8%	1	3%	13	7%	5	12%	36	9%	11	9%
Impetigo/furunculosis	8	1%	0	0%	2	1%	0	0%	6	1%	0	0%
Lice	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%
wounds infected,	5	1%	1	3%	1	1%	0	0%	2	0%	1	1%
insect bite	1	0%	0	0%	0	0%	1	2%	0	0%	0	0%
other (psoriasis etc)	7	1%	0	0%	0	0%	0	0%	7	2%	0	0%
psychomotoric retardation	2	0%	0	0%	0	0%	0	0%	2	0%	0	0%

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total= 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	N	%	n	%	N	%	n	%
hypotonia	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%
epilepsy	3	0%	0	0%	0	0%	1	2%	2	0%	0	0%
migraine/headache	1	0%	0	0%	0	0%	0	0%	1	0%	0	0%
physiological murmer	13	2%	0	0%	3	2%	1	2%	9	2%	0	0%
pathological murmur (suspected)	2	0%	0	0%	0	0%	0	0%	2	0%	0	0%
strabismus	2	0%	0	0%	0	0%	0	0%	2	0%	0	0%
keratoconjunctivitis	2	0%	0	0%	0	0%	0	0%	1	0%	1	1%
inguinal hernia	1	0%	0	0%	0	0%	0	0%	1	0%	0	0%
urinary infection	2	0%	1	3%	0	0%	0	0%	1	0%	0	0%

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

	Total		Chemchem		Kirungu		Masaini		Mikocheni Kubwa		Mikocheni Ndogo	
	798		Total= 36		Total= 180		Total= 42		Total= 418		Total= 122	
	N	%	n	%	n	%	n	%	n	%	n	%
Ferro	135	17%	6	17%	24	13%	13	31%	57	14%	35	29%
mother iron	55	7%	3	8%	7	4%	3	7%	33	8%	9	7%
multivitamins	267	33%	12	33%	57	32%	13	31%	142	34%	43	35%
anti-worm	201	25%	10	28%	53	29%	13	31%	111	27%	14	11%
acute worm	63	8%	1	3%	21	12%	5	12%	24	6%	12	10%
niclosamide	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%
amoxicillin	11	1%	1	3%	2	1%	1	2%	6	1%	1	1%
augmentin	3	0%	0	0%	0	0%	0	0%	2	0%	1	1%
2e lijns antibiotica	5	1%	0	0%	2	1%	2	5%	1	0%	0	0%
co-trimoxazol	7	1%	0	0%	1	1%	0	0%	3	1%	3	2%
paracetamol	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
ORS	2	0%	0	0%	2	1%	0	0%	0	0%	0	0%
Eardrops	6	1%	0	0%	4	2%	0	0%	2	0%	0	0%
hydrocortisone cream	11	1%	0	0%	3	2%	1	2%	5	1%	2	2%
dactarin cream	12	2%	1	3%	3	2%	0	0%	6	1%	2	2%
fusidin cream	8	1%	1	3%	2	1%	0	0%	5	1%	0	0%
sudo cream	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%
neutral cream	1	0%	0	0%	0	0%	0	0%	1	0%	0	0%
Iodine	2	0%	0	0%	1	1%	0	0%	1	0%	0	0%
Selsun	2	0%	0	0%	0	0%	0	0%	1	0%	1	1%
eyedrops	6	1%	0	0%	0	0%	0	0%	5	1%	1	1%