Medical Checks for Children

Medical Report
Bomani Kenya 2019

Iris Jansen and Iris van de Gevel
November 2019

Introduction
In the first week of July 2019 Medical Checks for Children (MCC) visited Bomani area (Kilifi County) for the first time. The MCC team checked and treated free of cost 739 children of 6 villages, during 6 days.

The medical checks were organized in close cooperation with North Coast Medical Training Centre (NCMTC) and the Community Health Promotion Fund (CHPF).
The medical camp was organized for 6 days in 6 villages of Kilifi Country in the Eastern (Coast) part of Kenya. In most of the villages no dispensary was present, or at several hours walking distance, and the nearest hospital was 1-2 hours away (by motor cycle).

The cooperation of NCMTC existed out of the following (amongst others):

- Announcement of the medical camp in the different villages.
- All contacts with districts/governmental officers.
- Selection of translators/local helpers.
- Providing food, drinks and lodging of all MCC team members and the translators.
- Transportation of the MCC team from lodge to the villages.
- Give follow-up for the referred children.
- Support medical MCC team during medical camp (translation, education, weigh and measure etc)

The MCC team consisted of ten members from The Netherlands: Iris Jansen (medical-end-responsible and mission leader, general practitioner), Veronique Schram (organization-end-responsible, organization consultant), Iris van de Gevel (organization-end-responsible, toxicologist), Amy Gunning (AIOS surgery), Martin Harbers (engineer construction), Richelle Middel (AIOS paediatrics), Nel Mocking (retired mediator), Larissa Mous (general practitioner), Inge Verbeek (paediatrician) and Hedwig Gosse link (education advisor).

Technical equipment, medical supplies and toothbrushes were brought from the Netherlands by MCC team members. Most of the medication was ordered in Kenya by NCMTC.

The aim of the mission is to make an inventory of the health situation of the children and mapping the existing health care in this region. In addition, an additional goal was to share knowledge during the medical camp with NCMTC students and coordinators, particularly with regard to community health in practice.

Medical Checks for Children on location:
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. Blood test (haemoglobin) and urine test and/or malaria test when indicated
4. Physical examination by a medical doctor
5. Giving medication (pharmacy)
6. Education on tooth brushing (a tooth brush was given to each child) and hand hygiene.
7. Enter children's files in data base.

In addition, at several locations and during parts of the day, a team of the dispensary was present to vaccinate children if necessary. Different vaccinations were available and were given according to the Kenyan vaccination scheme. Children were referred to the vaccination team after they finalized all stations of the MCC carrousel. Furthermore, we had a laboratory technician available at several locations, who could check on malaria, bilharzia or sickle cells in blood samples of children suspected of these illnesses

Special attention was given to the transfer of knowledge on health topics, nutritious food and dental hygiene of the children and parents.

For assistance and for general knowledge of the population, area and health care, Lucy Pamba of CHPF was present during the medical camp, in various roles but most importantly for children with special needs or referred to the hospital.

The students of the NCMTC were part of the medical camp. Every station had a coordinator from NCMTC, and every day new students came to assist or translate the MCC team or to participate in the education of children and parents.

Before the start of the medical camp the students of NCMTC performed a baseline survey, to identify the main issues the villages are dealing with, but also to select the villages for the medical camp. The results of the baseline survey were not shared with MCC.

Results Bomani Medical Camp

During the first medical camp in Bomani area we saw in total 739 children in six villages.

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

Village	01-07-19	02-07-19	03-07-19	04-07-19	05-07-19	06-07-19	Total
Bodoi	139	0	0	0	0	0	139
Junju	0	154	0	0	0	0	154
Katikirieni	0	0	0	0	135	0	135
Kolewa	0	0	115	0	0	0	115
Mtomondoni	0	0	0	0	0	132	132
Mwembe Tsungu	0	0	0	64	0	0	64
Total	**139**	**154**	**115**	**64**	**135**	**132**	**739**

In the announcement of the medical children of age below 10 years were invited to come with their caretakers. Of the 739 children, 64% was below the age of 5 years, 33% of the children was between 5 and 10 years of age, and only 3% was above 10 years old. Children below 5 year of age are considered to benefit most from a medical camp, so we were happy to see these young children and their parents visit the MCC medical camp.

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

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total=64	
Age	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<=1 year	201	27%	26	19%	24	16%	48	36%	37	32%	48	36%	18	28%
>1 and <5 years	274	37%	42	30%	59	38%	56	41%	41	36%	48	36%	28	44%
<5 years	475	64%	68	49%	83	54%	104	77%	78	68%	96	73%	46	72%
>=5 and <=10 years	244	33%	64	46%	68	44%	28	21%	33	29%	35	27%	16	25%
>10 years	20	3%	7	5%	3	2%	3	2%	4	3%	1	1%	2	3%
Gender														
Boy	392	53%	65	47%	96	62%	78	58%	57	50%	64	48%	32	50%
Girl	345	47%	74	53%	57	37%	57	42%	57	50%	68	52%	32	50%

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 (72, 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, from the parents to the doctors and vice versa. We learned from previous medical camps that the presence of caretakers will make the medical camp more sustainable.

Table 3: Child with care taker at the day of the check?

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total= 64	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
No	14	2%	14	10%	0	0%	0	0%	0	0%	0	0%	0	0%
Yes	722	98%	125	90%	153	99%	135	100%	113	98%	132	100%	64	100%
Teacher	2	0%	0	0%	0	0%	0	0%	2	2%	0	0%	0	0%

Anemia

In total 44% of the 739 children were anaemic. The highest prevalence of anemia was seen in Bodoi (58%) and Mwembe Tsungu (55%). The lowest prevalence of anemia was seen in Kolewa (34%) and Mtomondoni (35%). 22 children (3%) had an Hb below 5 mmol/l).
All children with anemia were treated with iron or multivitamin.

Figures of WHO indicate an overall prevalence of 41% for children under 5 in Kenya.
As we have no further information of the baseline survey made by NCMTC, or information on living habits or conditions and availability of food, NCMTC should further investigate these findings, and the potential reasons for differences and possibilities to reduce the prevalence of anemia.
In Kenya, a population-based cross-sectional study revealed that low iron diet intake and malaria were the main causes of anemia[1]. There were no indications of a high prevalence of malaria nor HIV/AIDs.

[1] O. Ngesa and H. Mwambi, "Prevalence and risk factors of anaemia among children aged between 6 months and 14 years in Kenya," Plos One, vol. 9, no. 11, Article ID e113756, pp. 1–10, 2014.

Table 4: Prevalence of anemia per geographical location by age and gender

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total=115		Total= 132		Total= 64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Anaemia	327	44%	80	58%	69	45%	58	43%	39	34%	46	35%	35	55%
No anemia	400	54%	58	42%	79	51%	74	55%	76	66%	84	64%	29	45%
Unknown	6	1%	1	1%	5	3%	0	0%	0	0%	0	0%	0	0%
Hb <5,0 mmol	22	3%	7	5%	0	0%	7	5%	1	1%	3	2%	4	6%
Anaemia per age														
<=1 year	95	47%	15	58%	13	54%	16	33%	18	49%	21	44%	12	67%
>1 and <5 years	114	42%	29	69%	24	41%	25	45%	8	20%	14	29%	14	50%
<5 years	209	44%	44	65%	37	45%	41	39%	26	33%	35	36%	26	57%
>=5 and <=10 years	105	43%	34	53%	29	43%	14	50%	11	33%	10	29%	7	44%
>10 years	13	65%	2	29%	3	100 %	3	100 %	2	50%	1	100 %	2	100 %
Anaemia per gender														
Boy	184	47%	40	62%	43	45%	38	49%	23	40%	25	39%	15	47%
Girl	142	41%	40	54%	26	46%	20	35%	15	26%	21	31%	20	63%

During the medical check-ups, we gave nutritional advice to all children and their guardians with emphasis on vegetable intake and vitamin C. When it comes to the prevention of anemia, the vitamin C intake is important because vitamin C facilitates the uptake of iron in the gut (as milk and tea counterparts it). However, the general availability of nutritious foods in the different villages should be investigated by NCMTC and based on this inventory additional plans can be made, eg to add a vitamin C source to the school meal, or children might benefit from e.g. a school garden 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.

Malnutrition
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 (weight for age) encompasses both stunting and wasting.

In total 18% of the children in Bomani area were underweight, 19% were stunted and 9% were wasted. Details can be found in tables 6, 7 and 8.
In general, the prevalence of underweight, stunting and wasting is quite high when compared to similar populations in Kenia and Tanzania seen by MCC.
Figures of USAID[2] of 2014 indicate for Kenya for children under 5 years, 11% for underweight, 26% for stunting and 4% for wasting.
Additional attention might be paid to availability of nutritious food in Bomani area and knowledge on nutritious foods, for mothers and young children. In addition, possibilities to

[2] https://www.usaid.gov/sites/default/files/documents/1864/Kenya-Nutrition-Profile-Mar2018-508.pdf

include a food program in the school, or to improve current diet might be investigated. Essential vitamins, and minerals in the diet are important for immunity and healthy development. Furthermore, advises on hygiene and anti-worm treatment, are of importance to prevent gastro-intestinal infections leading to growth abnormalities.
Maternal undernutrition might play an important role in poor foetal and child development and pregnancy complications. Therefore, mother/child programs, children's weight and length measurements and advises on nutritious foods might be considered in outreach programs of NCMTC.

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

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total=139		Total=154		Total=135		Total=115		Total=132		Total= 64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Underweight	132	18%	20	14%	30	19%	35	26%	16	14%	16	12%	15	23%
No underweight	584	79%	113	81%	119	77%	97	72%	95	83%	114	86%	46	72%
Unknown	21	3%	6	4%	4	3%	3	2%	4	3%	1	1%	3	5%
Underweight children per age														
<=1 year	29	15%	4	15%	5	21%	9	19%	3	8%	4	8%	4	24%
>1 and <5 years	55	20%	6	14%	9	15%	15	27%	11	27%	8	17%	6	21%
<5 years	84	18%	10	15%	14	17%	24	23%	14	18%	12	13%	10	22%
>=5 and <=10 years	48	20%	10	16%	16	24%	11	39%	2	6%	4	11%	5	31%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Underweight children per gender														
Boy	72	19%	9	14%	19	20%	22	29%	7	13%	5	8%	10	31%
Girl	60	18%	11	16%	11	20%	13	23%	9	16%	11	16%	5	17%

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

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total=139		Total=154		Total=135		Total=115		Total=132		Total=64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Stunting	137	19%	20	14%	32	21%	31	23%	22	19%	17	13%	15	23%
No stunting	594	80%	119	86%	120	78%	99	73%	93	81%	114	86%	49	77%
Unknown	6	1%	0	0%	1	1%	5	4%	0	0%	0	0%	0	0%
Stunting children per age														
<=1 year	36	18%	4	15%	8	33%	9	19%	5	14%	8	17%	2	11%
>1 and <5 years	67	25%	11	26%	13	22%	15	28%	11	27%	9	19%	8	29%
<5 years	103	22%	15	22%	21	25%	24	24%	16	21%	17	18%	10	22%
>=5 and <=10 years	29	12%	4	6%	11	16%	6	22%	4	12%	0	0%	4	25%
>10 years	5	26%	1	14%	0	0%	1	50%	2	50%	0	0%	1	50%
Stunting children per gender														
Boy	76	20%	9	14%	19	20%	22	30%	9	16%	8	13%	9	28%
Girl	61	18%	11	15%	13	23%	9	16%	13	23%	9	13%	6	19%

Table 7: Prevalence of weight/length at or under P3 (wasting) per geographical location by age and gender

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total=64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Wasting	70	9%	12	9%	21	14%	18	13%	7	6%	9	7%	3	5%
No wasting	592	80%	102	73%	113	73%	108	80%	99	86%	114	86%	56	88%
Unknown	75	10%	25	18%	19	12%	9	7%	9	8%	8	6%	5	8%
Wasting children per age														
<=1 year	24	12%	2	8%	6	25%	6	13%	4	11%	4	8%	2	12%
>1 and <5 years	22	8%	6	14%	8	14%	6	11%	1	2%	1	2%	0	0%
<5 years	46	10%	8	12%	14	17%	12	12%	5	6%	5	5%	2	4%
>=5 and <=10 years	24	12%	4	9%	7	13%	6	24%	2	7%	4	14%	1	7%
>10 years	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Wasting children per gender														
Boy	32	9%	3	5%	11	13%	12	17%	2	4%	3	5%	1	3%
Girl	38	12%	9	16%	10	19%	6	11%	5	10%	6	10%	2	7%

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, for Kenya, Mombasa and Bomani area, a prevalence of 20->50% of soil transmitted helminthiases were reported in public literature[3].

Of all children checked in the medical camp, only 3% of the children reported to have an active worm infection. The prevalence of any soil-transmitted infection as reported is quite low, however, it will be an underestimation considering the type of toilets used, or absence of faecal examination either by care takers at home or at the medical camp.

Of all children seen 53% received deworming treatment in the last 6 months (see table 8). Considering the medium high prevalence of preventive deworming it seems that in Bomani and surrounding villages currently a deworming program is in place, either at the dispensaries or at the schools.

[3] http://www.thiswormyworld.org/maps/distribution-of-soil-transmitted-helminth-survey-data-in-kenya

Other diagnoses and referrals
Other diagnoses included pneumonia (16), asthma (16), otitis media (acuta 5, with effusion 2), otitis externa (17), carries (47), fluorosis (81), eczema (23), dermatomycosis (134), scabies (19), infected wounds (13), psychomotoric retardation (13) and pathological heart murmur (3). Details on all diagnoses and given treatment can be found in the tables in the Annex.

If necessary, children were referred to clinics and hospitals in Kilifi and Mombasa. Information of the referred children was transferred to the Community Health Promotion Fund (CHPF) to organize the hospital visits and further support of these children.

CHPF is currently taken care of these children, planning visits, arranging transport and trying to connect again with the children and parents. Information on some of the children was shared with MCC by CHPF in November 2019.

In total 13 children were referred:

- Three children to the eye doctor with diminished eye vision of both eyes. These children will be seen by the eye medical camp by the Lion club of Mombasa.
- Three children to the paediatrician/surgeon with umbilical hernia. These children might be seen and operated during a surgical camp in December.
- Two children to a urologist/surgeon, one with a scrotal hernia and one with non-congenital non-scrotal testes
- One child with a breast lump (both sides) was send to the hospital for an ultrasound. An Ultra sound was conducted and there was a high possibility that the lump could be malignant. It was concluded that biopsy not to be done. The patient is to keep checking if the lump was growing or not. She will be seen after one year at Kilifi Hospital
- One child with a pulsating fontanel was send to the hospital for an ultrasound. As no aneurysm was seen, and the child had no further problems, an additional check after approximately 8 months was advised.
- A floppy infant was sent to the paediatrician for further investigation, and for this child a social program (lack of food) was advised. However, the parents of the child were not cooperative on his follow up and after three attempts gave up.
- One child with left side swelling was send to a paediatrician for further diagnosis and treatment. The child has lymphedema and after ultra sound and consultation with specialists, he was diagnosed with a proliferative disease of the fat tissue. This being a high complex condition, the parents were requested to observe and follow up on his ability to walk as he grows. They are to monitor his growth and walking and consult with orthopedic department to support him should he not be in a position to walk on his own. They are to be educated on his condition to understand and not link it with African believes and seek traditional healing which will involve cutting on the skin for medication to be rubbed in which might cause more damage the tissues. He should be checked again after one year.
- One child was sent to the paediatric cardiologist with a congenital pathologic heart disease. This child was referred to a "heart camp" for further investigation and treatment which was scheduled for September 2019.
- Some children were identified as children who might need more attention, e.g. to investigate what the special needs options are in this area by CHPF.

CHPF is currently is planning a revisit check-up camp for November 2019. This medical camp will be organized by studies and clinicians of NCMTC.

CHPF shared with MCC the following information on the upcoming medical camp:

Plan for the recommended referrals

1. The College has been informed on the revisit checkup camps for the children recommended by the MCC doctors. The days for the camp will be 20th, 21st and 24th of November. The students and clinicians will be part of the team.

2. Mobilize the parents by calling them and informing them on the camps. Madam Binti has already called 30 parents who have confirmed availability of their children to be attended to at the camp.

3. Camps will be in Bodoi, Junju and Kolewa. The area that does not have our tent (Bodoi), we will use the field as we did during the camp.

Staff during the camp

- *1 qualified clinician*
- *3 coordinators (Nutritionists qualified)*
- *2 students from each department (Clinical Medicine, Nursing, Nutrition, Community Health and orthopedic (10 students)*

Activities in the camp

- *Check vital signs*
- *Consultation by the clinicians*
- *Lab to do tests on the patients to check progress of the children*
- *Issue drugs to cases that are identified.*
- *Educate parents and children on hygiene and nutrition.*

Conclusions and recommendations

1. Deworming

In Kenya, deworming programs are in place, however, not all children are reached. In the Bomani area, approximately 50% of the children above the age of 1 year did not receive deworming treatment. It might be investigated what the reasons are for not receiving deworming treatment, and to consider to connect with governmental deworming programs, if NCMTC is planning outreach programs.

According to WHO large-scale deworming is the best way to reduce the suffering caused by intestinal worms. Improving basic hygiene, sanitation, health education and providing access to safe drinking-water are also keys to resolving the health and nutritional problems caused by intestinal worms.

2. Education

During the medical camp, at the education post, children and parents were informed about healthy nutrition (nutritious food, water consumption, breast feeding), dental hygiene and other topics. For future NCMTC outreach programs, we recommend to continue with sharing knowledge with parents and children on these health-related topics.

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 (dental) hygiene and importance of deworming. Further topics might be immunization, family planning, etc.

3. Special needs children

During our medical camp we came across a considerable number of special needs children, e.g. psychomotoric retardation, but also some other children with special medical or mental conditions. It might be investigated by CHPF and/or NCMTC if there is a need to make a further inventory of possibilities for additional support and training for these children and parents.

4. Health care in the Bomani area

In Bomani and surrounding villages, there is access to health care in the dispensaries for basic care and at greater distance small clinics or hospitals are available. In some cases, the dispensaries are located in the villages were the medical camp was organized. During the medical camp were experienced a lot of cases were parents visited a medical doctor or hospital/clinical recently. This group of parents lacked money for further referral to specialists, investigations or medication, and came to the medical camp for further advise and/or treatment and/or referral. During the last 4 days of the medical camp we made an inventory of the number children who visited a doctor or clinic/hospital in the last 6 months.

Table 10: Children with access to health care

	Total		**Bodoi**		**Junju**		**Katikirieni**		**Kolewa**		**Mtomondoni**		**Mwembe Tsungu**	
	739		**Total=139**		**Total=154**		**Total=135**		**Total=115**		**Total=132**		**Total=64**	
	N	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Growth book, child	57	8%	No data		No data		18	13%	23	20%	1	1%	15	23%
Visited doctor/hospital last 6 months	17	24%	No data		No data		48	36%	48	42%	45	34%	35	55%

Based on the available health care in Bomani area and Kilifi as dispensaries, it is questionable whether medical camps as organized by MCC should be considered for the future. Although relative high prevalence of anemia, malnutrition and other diagnoses were noted (e.g. dermatomycosis, scabies, infected wounds, pneumonia), most people might benefit from health care education, health care insurance and/or better access to referral hospitals or medical camps (organized by cardiologists, ophthalmologists and surgeons) that apparently are kept on site on a regular basis. NCMTC might make a further inventory of these medical camps, and inform dispensaries and parents in the area. In addition, NCMTC and/or CHPF might investigate if other medical camps or outreach programs for specific medical expertise can be organized in the area to make specialized health care better accessible for the community, e.g. eye doctors, dental care, etc.

Last words

We are very grateful for all work performed by Marianne, Waswa, Lucy and all coordinators and students of the NCMTC during the medical camp in Bomani area. We could not have performed our work without their presence and hard work. We were able to see 739 children in only 6 days, in different beautiful villages with a big team of enthusiastic people. MCC was thrilled by the presence of so many care takers and young children, during a first medical camp on this location.

We were very excited when we learned that CHPF and NCMTC are organizing a revisit check-up camp in November 2019!

Much improvement is still needed in the general health care of the children of Bomani area, we hope that a lot will be achieved in the following years by CHPF and/or NCMTCin future outreach programs. We would like to thank all workers and students of NCMTC and CHPF for their enthusiasm and cooperation.

Iris Jansen and Iris van de Gevel

Annex 1 – Detailed tables for Bomani

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

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total=	139	Total=	154	Total=	135	Total=	115	Total=	132	Total=	64
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Underweight	132	18%	20	14%	30	19%	35	26%	16	14%	16	12%	15	23%
Stunting	137	19%	20	14%	32	21%	31	23%	22	19%	17	13%	15	23%
Wasting	70	9%	12	9%	21	14%	18	13%	7	6%	9	7%	3	5%
Anaemia	327	44%	80	58%	69	45%	58	43%	39	34%	46	35%	35	55%
HIV pos.	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%	0	0%
Malaria (suspected)	12	2%	0	0%	1	1%	4	3%	4	3%	2	2%	1	2%
vitamin deficit (clinical signs)	1	0%	0	0%	0	0%	0	0%	1	1%	0	0%	0	0%
Bilharzia	2	0%	0	0%	0	0%	1	1%	1	1%	0	0%	0	0%
syndrome n.o.s.	10	1%	0	0%	3	2%	2	1%	2	2%	1	1%	2	3%
pneumonia (clinical)	16	2%	1	1%	4	3%	4	3%	1	1%	3	2%	3	5%
pneumonia (X-ray confirmed)	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%
tuberculosis (clinical)	2	0%	0	0%	0	0%	0	0%	0	0%	0	0%	2	3%
bronchitis	2	0%	0	0%	1	1%	0	0%	1	1%	0	0%	0	0%
BHR/asthma	16	2%	4	3%	3	2%	2	1%	2	2%	4	3%	1	2%
dysenteria	4	1%	0	0%	1	1%	2	1%	0	0%	0	0%	1	2%
dehydration: acute diarrhoea	4	1%	1	1%	0	0%	1	1%	0	0%	2	2%	0	0%
diarrhoea without dehydration	15	2%	3	2%	3	2%	1	1%	4	3%	2	2%	2	3%
constipation	14	2%	4	3%	1	1%	1	1%	0	0%	6	5%	2	3%
active worm infection	19	3%	6	4%	7	5%	1	1%	1	1%	3	2%	1	2%
active lint worm	1	0%	0	0%	0	0%	0	0%	1	1%	0	0%	0	0%
otitis media acuta	5	1%	1	1%	2	1%	2	1%	0	0%	0	0%	0	0%
otitis media with effusion	2	0%	0	0%	1	1%	0	0%	0	0%	0	0%	1	2%
otitis externa	17	2%	3	2%	2	1%	0	0%	3	3%	6	5%	3	5%
(adeno)tonsillitis	6	1%	0	0%	3	2%	1	1%	0	0%	1	1%	1	2%
candida stomatitis	4	1%	1	1%	0	0%	0	0%	0	0%	3	2%	0	0%
hearing impairment	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%
other	12	2%	1	1%	4	3%	0	0%	5	4%	1	1%	1	2%
cariës n.o.s.	45	6%	8	6%	13	8%	7	5%	5	4%	5	4%	7	11%
pain n.o.s	2	0%	1	1%	0	0%	0	0%	1	1%	0	0%	0	0%
fluorosis	81	11%	22	16%	25	16%	6	4%	13	11%	9	7%	6	9%
filling temporary teeth	1	0%	0	0%	0	0%	0	0%	0	0%	1	1%	0	0%
caries with pain	9	1%	1	1%	1	1%	2	1%	4	3%	0	0%	1	2%
wounds n.o.s.	9	1%	1	1%	2	1%	0	0%	4	3%	1	1%	1	2%
eczema n.o.s.	23	3%	8	6%	4	3%	4	3%	1	1%	3	2%	3	5%
dermatomycosis	134	18%	26	19%	33	21%	19	14%	20	17%	20	15%	16	25%
Impetigo/furunculosis	25	3%	3	2%	4	3%	6	4%	5	4%	6	5%	1	2%
lice	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%
scabies	19	3%	7	5%	3	2%	4	3%	2	2%	1	1%	2	3%
wounds infected,	13	2%	0	0%	3	2%	4	3%	2	2%	1	1%	3	5%
insect bite	2	0%	0	0%	0	0%	0	0%	0	0%	0	0%	2	3%
other (psoriasis etc)	54	7%	6	4%	16	10%	3	2%	15	13%	9	7%	5	8%
psychomotoric retardation	13	2%	4	3%	0	0%	5	4%	2	2%	1	1%	1	2%
hypertonia	2	0%	1	1%	0	0%	0	0%	0	0%	1	1%	0	0%
epilepsy	4	1%	0	0%	0	0%	1	1%	1	1%	1	1%	1	2%
migraine/headache	2	0%	1	1%	0	0%	1	1%	0	0%	0	0%	0	0%
meningitis	1	0%	0	0%	0	0%	1	1%	0	0%	0	0%	0	0%
physiological murmur	5	1%	0	0%	3	2%	1	1%	0	0%	1	1%	0	0%

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total= 64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
pathological murmur (suspected)	3	0%	2	1%	0	0%	1	1%	0	0%	0	0%	0	0%
refractory problem	4	1%	3	2%	0	0%	0	0%	0	0%	1	1%	0	0%
strabismus	1	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%
keratoconjunctivitis	6	1%	0	0%	1	1%	1	1%	1	1%	2	2%	1	2%
inguinal hernia	2	0%	1	1%	0	0%	1	1%	0	0%	0	0%	0	0%
urinary infection	3	0%	1	1%	0	0%	0	0%	1	1%	1	1%	0	0%
old fracture	3	0%	0	0%	0	0%	2	1%	1	1%	0	0%	0	0%
hernia(umbilical etc)	66	9%	9	6%	20	13%	8	6%	10	9%	13	10%	6	9%
Bilharzia confirmed	1	0%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%
Sickle cell anemia confirmed	2	0%	0	0%	0	0%	2	1%	0	0%	0	0%	0	0%

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

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total= 64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Ferro	210	28%	62	45%	43	28%	29	21%	23	20%	28	21%	25	39%
mother iron	35	5%	7	5%	6	4%	5	4%	3	3%	9	7%	5	8%
Multivitamins	181	24%	22	16%	45	29%	46	34%	25	22%	25	19%	18	28%
anti-worm	187	25%	34	24%	40	26%	22	16%	25	22%	48	36%	18	28%
acute worm	27	4%	8	6%	8	5%	3	2%	2	2%	3	2%	3	5%
anti-lice	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
anti-scabies	14	2%	6	4%	0	0%	4	3%	2	2%	0	0%	2	3%
niclosamide	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	2%
amoxicillin	27	4%	1	1%	9	6%	7	5%	1	1%	6	5%	3	5%
Augmentin	6	1%	1	1%	1	1%	2	1%	1	1%	0	0%	1	2%
2e lijns antibiotics	3	0%	0	0%	0	0%	2	1%	1	1%	0	0%	0	0%
metronidazole	2	0%	0	0%	0	0%	0	0%	0	0%	1	1%	1	2%
co-trimoxazole	4	1%	0	0%	1	1%	2	1%	0	0%	1	1%	0	0%
ceftriaxone	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
AB urine infection	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
paracetamol	4	1%	0	0%	0	0%	2	1%	0	0%	1	1%	1	2%
ORS	5	1%	1	1%	1	1%	2	1%	0	0%	1	1%	0	0%
eardrops	17	2%	3	2%	3	2%	0	0%	3	3%	4	3%	4	6%
nystatin	3	0%	0	0%	0	0%	0	0%	0	0%	3	2%	0	0%
mupirocin=Bactroban	15	2%	1	1%	1	1%	5	4%	7	6%	1	1%	0	0%
hydrocortisone cream	26	4%	7	5%	7	5%	5	4%	1	1%	2	2%	4	6%
daktarin cream	64	9%	11	8%	19	12%	9	7%	12	10%	7	5%	6	9%
dactacort cream	16	2%	3	2%	0	0%	3	2%	0	0%	10	8%	0	0%
Fucidin cream	16	2%	1	1%	4	3%	2	1%	2	2%	4	3%	3	5%
sudo cream	2	0%	0	0%	0	0%	0	0%	0	0%	0	0%	2	3%
neutral cream	14	2%	1	1%	1	1%	2	1%	3	3%	5	4%	2	3%
iodine	5	1%	0	0%	0	0%	0	0%	0	0%	4	3%	1	2%
griseofulvin	14	2%	0	0%	5	3%	2	1%	2	2%	4	3%	1	2%
eyedrops	6	1%	0	0%	1	1%	2	1%	1	1%	1	1%	1	2%
folic acid	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
hydrogen peroxide drops	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
itraconazole	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

	Total		Bodoi		Junju		Katikirieni		Kolewa		Mtomondoni		Mwembe Tsungu	
	739		Total= 139		Total= 154		Total= 135		Total= 115		Total= 132		Total= 64	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
nasal drops	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
malaria treatment	2	0%	0	0%	2	1%	0	0%	0	0%	0	0%	0	0%